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THE HEALTH MAGAZINE

HYGEIA

EXTRAVERT OR INTROVERT?

See Page 971

Charley-Horse • Hard of Hearing • "The Vitamin Follies"

AN AMERICAN MEDICAL ASSOCIATION PUBLICATION

H. S. BARNES TO RETIRE
Prominent local pharmacist closes 40 years of community service
Harold S. Barnes, affectionately known to his fellow townsmen as "Hal", will officially retire from active management of Barnes' Pharmacy next Monday.
Mr. Barnes' youngest son, Bob, who recently finished his college studies in pharmacy, will take over the business in his father's stead. Mr. Barnes' many friends, whose name is legion, will greatly miss "Hal's" cheery greeting.
"Those in charge of the arrangements for the President's visit will

The story the papers didn't print

THERE were a lot of things old Hal Barnes could have told the papers the day he retired.

Out of the worn leather-bound books that held all the prescriptions he'd compounded in the past 40 years, he could have given them intimate glimpses into the lives, the crises, the heartbreaks of almost everybody in town.

If he chose, old Hal could have pointed to those tragic pages that told the story of despair, tragedy, and heroism the time the town was visited by the devastating flood.

But Hal Barnes doesn't talk about these things. You can't get a word out of him about his forty years of service to the community. He'll brag about the perch he caught in Silver Lake, or the pheasant he shot last week, or what the Chamber of Commerce is doing for the town. But never a peep out of him about those emergency calls in the night—about the hours spent at his prescription counter helping alleviate pain and disease, and often, battling with death itself.

Hal knew that illness never takes a vacation—and somehow he never seemed to find time to take very many himself. Now he's getting a real one, and he's earned it. A plain man, but skilled in his profession, with an intimate knowledge of hundreds of different drugs, and a deep-rooted ideal of service to the neighbors and friends who made up his world.

It's a fine thing for America that Hal has his counterpart in thousands of communities throughout the land.

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BABIES SUPERVISED BY PHYSICIANS ARE BETTER BABIES

Until recent years, it was largely a matter of luck whether or not a baby would grow up strong, healthy, and normal. Nowadays many of the dangerous reefs of childhood are well charted by the medical profession. Smallpox, once a dread scourge, is becoming a rarity. Diphtheria, tuberculosis, and typhoid have been placed under control. The deformities of rickets are now disappearing almost miraculously. And every year doctors all over the world make new discoveries for the welfare of babies. Can any mother do less than avail herself, through her physician, of these safeguards to her child's future?

BABIES SUPERVISED BY PHYSICIANS ARE BETTER BABIES

This space is devoted to the interest of better babies by
MEAD JOHNSON & COMPANY, *Evansville, Indiana*

NOVEMBER 1938 Vol. 16 No. 11

HYGEIA

THE HEALTH MAGAZINE

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PRESENTING

MRS. CALVIN COOLIDGE who, in observance of National Hearing Week (October 23-29), pleads for a better understanding of the problems of deafness: "a fair deal for the hard of hearing child and a square deal for the hard of hearing adult."

—◆—

BRYNG BRYNGELSON, Ph.D., professor of speech pathology and director of the Speech Clinic, University of Minnesota, who discusses speech problems and their relation to mental health.

—◆—

J. C. ELSOM, M.D., emeritus professor of physical therapy, University of Wisconsin Medical School, who writes of the dangers of the athlete's bugbear, charley-horse.

—◆—

LEWIS RADCLIFFE, Sc.D., who, as director of the Oyster Growers Institute of North America and Deputy Commissioner of Fisheries, is well equipped to give the inside story of the life of the oyster.

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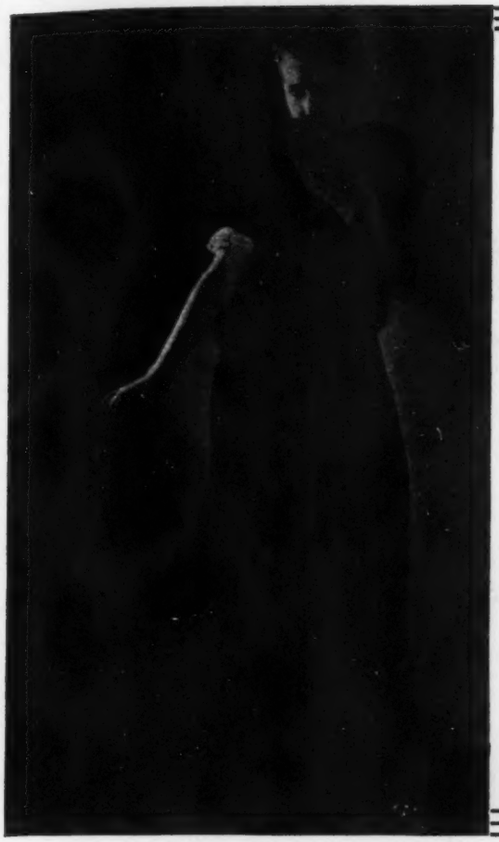

Victorian Interlude

Frills and furbelows! How charming we look in our modern-Victorian gowns. How elegant and feminine! And how the good Queen would chuckle could she hold court to us modern Victorians. Far from being shocked, one imagines she would get a "kick" out of our new-fangled ways of doing the same old things. Perhaps it is a bit far-fetched to imagine Her Majesty actually approving the use of cosmetics, but then in her day cosmetics were not the practical aids to natural-looking beauty that they are today.

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A GOOD SOURCE OF VITAMINS B_1 AND G

A GOOD SOURCE OF BULK

OTHER MEN WORK FROM SUN TO SUN,—BUT THE DOCTOR'S WORK IS NEVER DONE!

The "Nonstop" Champ Spends a Day with a Doctor

EDITORIAL

The Doctor's Day

IN THE DISCUSSIONS as to whether the practice of medicine is a profession or a trade and in the considerations of new methods of supplying medical service, many fail to evaluate properly the nature of the doctor's work. Some years ago the Commission on Medical Education, which was a representative group including leading educators and physicians, made an analysis of the daily work of a doctor in an average American community. The results of that study showed that the doctor is not governed by the usual rules having to do with hours of work, leisure time, routine character of employment or any of the other factors which are so easily regulated for workers in business or in trades. For instance, 500 doctors who had been out of school for from five to thirteen years and who were doing what is called a general practice in towns of 50,000 or less in twenty-four states of the United States and in two provinces of Canada were asked to submit samples of their daily work. Each gave a list of the patients that he saw and the diagnoses of the conditions from which these patients suffered.

First, it was found that 55 per cent of the practice of the doctor was carried on in his office, 35 per cent was attended to in the patients' homes and the remaining 10 per cent was carried on in the hospital. Seventy-five per cent of the office visitors were treated for infections of the nose, throat and lungs, such as the common cold and sinus infections, for general medical disorders, for minor surgery and for venereal diseases. About 90 per cent of the visits made to the patients in their homes were for infections of the nose, throat and lungs, for general medical and contagious diseases, for childbirth and for minor surgery. In the hospital, on the contrary, 50 per cent of the visits were made for surgical conditions and 15 per cent for childbirth. With this variation in the nature of the services to be rendered and in the characteristics of the people who are attended, a wide variety of problems must be met by the doctor. Obviously, it is not possible to standardize medical practice as one might standardize the building of a motor car, salesmanship in a department store or almost any other of the ordinary occupations of mankind.

In meeting the needs of sick people the doctor must have judgment, insight and resourcefulness. He has to understand the entire problem of each patient, realizing that no two patients are alike. He must treat every individual according to that individual's needs at the time when that individual wants him. If a woman pinches her finger in a door at 2 o'clock in the morning, she does not want a doctor who rings in on a clock at 8 in the morning. If a man is seized with a sudden severe spell of vomiting at 10: 30 at night, he does not want to call a salaried doctor whose hours of work are from 9 in the morning until 3: 30 in the afternoon. Medical work is, therefore, as much an emergency occupation as is that of the fireman, who may be idle six hours of the day and ready to hazard his life in the seventh. Yet the fireman is dealing with materials primarily and with the saving of these materials from destruction, while the doctor is dealing with an intangible known as human life which, once destroyed, cannot be restored. The physician stands between death and the patient, carrying on a warfare against an enemy that threatens constantly and that knows no fixed hours of attack.

In the attempt to solve the problem of medical care for all the people, it has been suggested that a salaried medical profession, whether employed by the government, a corporation, a cooperative group or under any other circumstances, would answer the problem for the American people satisfactorily and would give them the kind of professional service that they have been used to having. There is every evidence that this contention cannot be sustained. When the doctor's practice becomes standardized to hours of work and to his needs rather than to the needs of the patient, the quality of medical practice will inevitably suffer.

Let us not go backward; let us sustain in medicine particularly that individual freedom and that mutual human relationship that has given to Americans the best medical practice available today anywhere in the world.

"Unaccustomed as I Am—"

THOUGH FEW PERSONS have been able to interpret speech as a symptom of personal health, such a point of view is thoroughly essential to any adequate understanding of the subject. Physicians and psychiatrists have long recognized its worth as an aid in the diagnosis of physical and mental disease. Epilepsy, chorea, bulbar paralysis, hysteria, the manic and depressive states of insanity—these are but a few of the physical and mental malconditions which reflect their nature in the speech of the individual affected. However, this symptomatic value of speech has been largely ignored by all save those teachers specializing in the retraining of speech defectives. Yet when irregularities of speech are treated as symptoms of irregularities in mental health, hygienic methods can be employed which will eradicate them. Every teacher should know at least the basic principles of mental hygiene and their application to speech.

Considering speech as a symptom of mental health, one may classify speakers into five groups. First, there are those speakers who speak with ease and poise whether alone or before a group. These may exhibit an occasional sign of inward perturbation, such as flushing or staccato movements, but these minor alterations in physical appearance detract little from the favorable impression being made. Quite often this random nervous energy gives individuality to an otherwise neutral personality. In many individuals it serves to add power and intensity to their words. Indeed, one reason for the insipidity of so many radio talks is the very lack of this audience consciousness. Few persons lose entirely the temporary heightening of the emotions which accompanies public speaking, and in its milder form such evidence of unfocalized nervous energy is never sufficient to relegate such speakers to the class needing speech reeducation.

In the second group may be placed those whose audience consciousness is abnormal. The speech mechanisms of the individuals in this group are efficient enough in casual everyday conversation, but when employed before an audience they fail wofully in the attempted communication. The speaker typical of this group suffers internal confusion and turmoil, outwardly indicated by wringing of hands, profuse blushing, dryness of throat, tremblings and an obvious lack of smooth-flowing ideas. His behavior is such that his auditors, sympathizing with his suffering, are immediately ill at ease. Naturally, such a speaker will play hermit-crab when confronted with an opportunity to address a group. Surely, these people present a speech problem and are in need of help. The fact is, however, that casual observation is entirely inadequate in discovering why they should be so handicapped in expressing their thoughts. The situation has altered the speech mechanism in such a way that it does not function smoothly. Since altering the situation is impossible, we are left with the necessity of altering the speaker. This may be done through proper speech hygiene.

The third group is also comprised of those whose speech organs are normal in every way. This group, however, includes only those individuals who possess obvious and pronounced physical differences from the norm of society. They possess such a deep sensitivity toward this difference that they are unable to cope effectively with what Woolbert calls "confrontation." The symptoms of uneasiness displayed are much like those in the second group described. They differ somewhat in that very often there are plainly observable signs that the individual is attempting to cover up his blemish. The man sensitive to his false or protruding teeth muffles his voice with a casual hand, or the naturally bow-legged person seeks to speak from behind any available rostrum. I have seen such a person use a window stick for such psychologic protection.

Some individuals in this group never fail to refuse any public appearance; others accept with fear and trembling but fail to enjoy the experience because of their sensitivity. Often the person with such a handicap does little more than say "Ladies and Gentlemen" before breaking down. Fainting, crying and sickness are not uncommon escape mechanisms for alleviating such situations.

In the fourth group I would place those who, because their pronounciation is not that commonly accepted as standard, are unsuccessful in speaking understandably, either in private or before a group. This maladjustment may range from the slightest foreign accent to pronounced lisping or oral inaccuracy. In any event, their speech is sufficiently abnormal to merit immediate correction if we have any regard whatever for the mental health of those possessed by such difficulties.

The last group includes those speakers who are unable to express their thoughts because the muscles of their vocal apparatus tighten into

Whether they be intimates or enemies, an audience may needlessly inspire terror and mental tumult, declares

BRYNG BRYNGELSON

what is called a tonic spasm. These tonic spasms may be slow and lingering or rapid and broken in rhythm. After a five or ten minute attempt at speaking, such individuals are fatigued to the point of exhaustion. This is all the more remarkable when one realizes the effortless character of normal speech; the actual power output in normal speech is approximately two ten-millionths of that in a 50 watt lamp. However, in these stutterers even the increased energy demanded for speech seems to flow so irregularly that continuity of both thought and action is entirely lacking. Yet it must be remembered that the desire and will to say what is in them are as strong as in any of the persons in the other groups. Such thorough exhaustion with psychologic defeat in communication leads to an utter disgust for recitation or speaking exercises of any variety. Such tremendous inhibition nearly always

reflects itself in some impairment of the stutterer's mental health.

What are the means of attacking the problems of these various types of speakers? Obviously each group needs a different and individual treatment; yet there is one technic which, if handled wisely, should benefit each personality involved.

Those of the first group need merely some insight into the problems which underlie the difficulties of the other less fortunate speakers in order that they may the better appreciate their own facility and joy in speaking. Provided they have something to say and possess a moderately pleasing voice, they need nothing from the teacher save encouragement.

The members of the second group need a keen understanding of themselves which will throw light on the emotional reasons for such speech behavior. It is certainly not by chance that their speech goes to pieces merely because the situation in which they use it has changed. With the help of a psychiatrist or any one trained in the uprooting of inferiority feelings they may work out their own salvation as speakers. Irrational ideas, morbid fears and erroneous concepts about self and society often lie in the background and must be interpreted, understood and evaluated before these individuals can expect speech freedom before a group. Mere forcing as a technic for such adjustment is often not only useless but criminal in its effects. Good mental health is seldom achieved by augmenting the conditions of illness. Insight into self can be gained only by analysis of self, and such analysis should be carried out with the help of some one who can see the personality profile objectively and clearly.

The third group, composed of those possessing marked physical differences, is larger than one might cursorily expect. Such individuals must learn all about their differences and must overcome all sensitivity toward them.

Were you to learn more about these physically handicapped speakers you would discover that the feeling of difference has been present since early childhood. These persons have tried in vain to be well accepted within the social group. Perchance mimicry and ridicule were the usual conditions of their playground activity. If so, in reacting defensively they either ran away or became combatant. But neither of these reactions was more than temporarily adequate to the situation, for one cannot fight or run away forever; consequently the sensitivity remained. Then unwholesome compensations set in. Some developed comic traits in order to attract attention away from their difference; others cultivated belligerent attitudes.

For a number of years, work has been carried on at the University of Minnesota with personalities presenting this barrier for sensitivity to speech situations. Efforts are made to help the individual to face objectively whatever physical difference he has and to convince him that there is no further use in continuing to hide the difference or in using psychologic crutches to help him make it seem less conspicuous. He is told that the best way to rid himself of his sensitivity is to wear it out by observing it dispassionately in mirrors, by analyzing it carefully and by talking of it. Encouragement is given to story telling in which he deliberately imitates his differences or displays them. In this way, after he has gained insight and objectivity, the differences vanish as such, and the student is happily adjusted to either private or group-social intercourse.

Parents and teachers having this objective attitude toward themselves may spare the oncoming generation much agony and social pain. They need only, by precept and example, instil in their children at home or in school a healthy objective attitude toward their difference. Frankness and a sense of humor are the medicines to be administered in order that these persons may speak effectively.

The fourth group, besides needing articulatory and phonetic exercises, requires also this wholesome view of the difficulty. There is no valid reason why a person with a dialect should not enjoy a sense of humor about that dialect while he is being trained to overcome it.

The stutterers, whom I have included in the final group, require what is fundamentally a neurologic treatment, but this is at best a long and tedious procedure. No stutterer is apt to gain free speech overnight. One thing he is assured; he must stutter for a period of months or years. Unless a stutterer learns this objective attitude of viewing his stutter as merely a manner of speaking, he will develop unwholesome personality traits, social morbidities and defense mechanisms that are in themselves signs of poor mental health. Furthermore, ill health in the mental realm is not conducive, but as a matter of fact resistant, to the setting up of the neurologic dominance essential in any cure of the disorder. Here again parents and teachers may do much to facilitate the neurologic treatment, whenever that treatment is to be given, by helping the stutterer accept his spasms good-naturedly.

I believe that mental health contributes as much to the full enjoyment of pleasant social intercourse as does physical health. Certainly the two are closely related. Better mental health can be gained for the student of speech through a thorough understanding of the various unconscious mental mechanisms at work within the organism, through a more sane insight into the functioning of the "feeling" patterns and generally through a fairer estimate of our worth as individuals struggling competitively with our fellows.

Cy La Tour

EXTRAVERT or INTROVERT?

By PAUL POPENOE

MAX AND JIM are brothers, close together in intelligence, two years apart in age but 2,000 miles apart in behavior, although they have been brought up under the same roof.

Jim is a slender, somewhat delicate boy, quiet and studious, sensitive and retiring, a dreamer. Max is a robust, energetic "go-getter." The minute an idea occurs to him he must put it into action. He does not waste any time brooding over what has happened. He is too eager to find out what is going to happen next and to have a hand in the happening.

Max is an extravert; Jim is an introvert. They were born that way. There is not much that the parents can do about it.

Unfortunately the parents don't know that. They are continually nagging Jim because he isn't more sociable and aggressive like his brother. They are incessantly hounding Max because he isn't more thoughtful, painstaking and conscientious like Jim.

The difference between extravert and introvert is one of the greatest within the normal range of mankind. One who does not understand it cannot understand human nature.

These types represent only the extremes. Most of us are somewhere in between. If all the children in a school were arranged in a line beginning with the most extravert and ending with the most introvert, the bulk of the school would be in the middle. One would have to draw arbitrary lines to demarcate the two ends. Where these lines would be drawn is merely a matter of taste. They might cut off the 5 per cent, the 10 per cent or the 15 per cent at each extreme. In any case no one could doubt that those at one extreme would behave very differently from those at the other.

They would also differ from each other in makeup. The introvert is likely to have less active glandular secretions and less efficient circulation of the blood than the extravert.

They would be different in appearance. The extraverts would include more short and thick-set children; the introverts more of those with a slender, delicate build. The temperamental differences, in short, are constitutional and are associated with differences in physique.

The fact has been recognized since before history. Art and literature have distinguished many such contrasting specimens. Don Quixote, the introvert, and Sancho Panza, the extravert, might be called the classic pair; but you will have no difficulty in thinking of a dozen others whose types contrast as strikingly in body build as in temperament. Take Sherlock Holmes, for instance—the introspective thinker, slumped in his armchair and absorbed by "deductive ratiocination." You know what he looks like on the stage, in illustrations, in caricatures. He is at the opposite pole from Mr. Pickwick, the bustling, affable, sociable extravert who can't help taking an active interest in the affairs of every one he meets.

It is also easy to think of any number of prominent contemporaries who illustrate the extremes. On the extravert side one would immediately place many of the politicians: Lloyd George, Edouard Herriot, Aristide Briand,

Al Smith, Huey Long, Theodore Roosevelt, Franklin Delano Roosevelt and Fiorello La Guardia. On the introvert side would be found Coolidge, Woodrow Wilson and his mentor Colonel House, Henry Ford, Hitler and Colonel Lindbergh. One could scarcely select a more perfectly contrasted pair, for the present purpose, than La Guardia and Lindbergh.

Wild animals, unless sick, give the impression of being extraverts; hence this is sometimes called the primary type, and the introvert, supposedly derived from it, the secondary. Just where the introvert appeared in evolution is unknown, but it has been here long enough to be conspicuous in every race of mankind.

Girls on the average are somewhat more introvert than boys. This fact is probably associated with glandular balance, since almost every girl becomes more introverted than usual during her menstrual period.

The types, alike of temperament and of physique, run in families. Thinking over the list of your friends, you will remember some whole families of introverts or extraverts, as the case may be. But because of the mixed ancestry in the background of all of us, the two types often appear, distinctly enough, in the same home—as Max and Jim.

Parents will testify that the observable differences go back to the cradle. Even before he can walk or talk one child will be alert, responsive to what is going on around him, while another is apparently more reflective and self contained.

As they get a little older, they begin to furnish their parents and guardians with different sorts of behavior problems. The extravert puts too great emphasis on every impression, whether it comes from within or without. He "flies off the handle" too readily. He is in danger of becoming a "smart aleck," a superficial showoff, unless kept within bounds. But keeping him within bounds is not so easy. He is not readily squelched; he always has a "comeback"; he may be able to outtalk his mother, even before he knows what all the words mean.

Compensating for this, the extravert will please his parents by making a good social adjustment without any special help. He will always be prepared to answer when the teacher asks a question or calls for a volunteer. He will make good marks without much effort, will take the leadership in school activities, will be popular with associates because always ready with a joke or a retort. He will be fond of puns, puzzles and rhymes, and his readiness of superficial associations will make him excel in such forms of mental activity.

His wandering attention, however, will be a problem. It is even claimed that some children who have difficulty in learning to read, in spite of high intelligence, are merely extreme extraverts; their attention shifts so rapidly, new ideas come crowding into their minds so freely and demanding attention so imperatively, that they cannot concentrate on any sentence long enough to grasp it.

They do their chores the same way. Send your introvert boy, Jim, out to do the dishes and, if you can once get him started, he will probably go straight to the job, do it painstakingly and then come back to his book or magazine. Tomorrow night it is the turn of his extravert brother. Max starts readily enough on the same route, but before he gets from the living room to the kitchen he will have thought of a dozen things, to each of which he must immediately dedicate his life for the time being. The dishes will be done slowly because he has so much else on his mind or else rapidly because he wants to get away, but in either case carelessly. The extravert is the boy to send out if you want some one to make a house to house canvass, selling tickets to the P.-T.A. benefit. He is not the boy to put on any job that requires meticulous attention to detail. He is too likely to slight the job and then try to bluff it out.

Broadly speaking, the introvert is the opposite of all this. His interest and attention are turned, as the name indicates, inward rather than outward. He is more concerned with his own thought processes than with what is going on around him in the outside world. His parents may be annoyed because they think he is too reserved, too seclusive, too secretive. On the other hand, they will be pleased with many of his traits that make for easy management. He won't be running around with the gang but is more likely to be found on the floor with a book—probably a good one, at that. He will be neat and careful about his clothes, at least by childish standards, and more conspicuously so as he becomes adolescent. He will be modest, unassuming, cautious, critical, persevering.

Of course human nature is much too complicated to be reduced to a simple diagram. I am simplifying the picture, but you know of all sorts of combinations, some of which are not favorable. Natalie, by way of illustration, has the strong desire for self assertion that marks the extravert, with the "thin skin," the sensitiveness and proneness to hurt feelings that mark the introvert. It is an easy guess that she will be in hot water most of the time.

Judging by our observations at the Institute of Family Relations, parents appear more likely to be unwise in dealing with the introvert than with the extravert child. We live in an extravert world. The extravert child will to a large extent take care of himself. He may get into trouble, but he is likely to know how to wriggle out of it. He has the same tolerance for scolding that a duck's back has for water. No one can make an introvert out of him, although one finds, particularly in adult life, extraverts with

so many mental conflicts and complexes that they pass as introverts, even among those who know them well.

Parental management of the extravert should be guided by four principles:

1. Give the child enough to do. He has not the inner resources of the introvert; he needs more to occupy his mind and to keep him out of mischief. A real extravert makes heavy demands on the imagination and resourcefulness of his parents, especially in the conditions of city life.

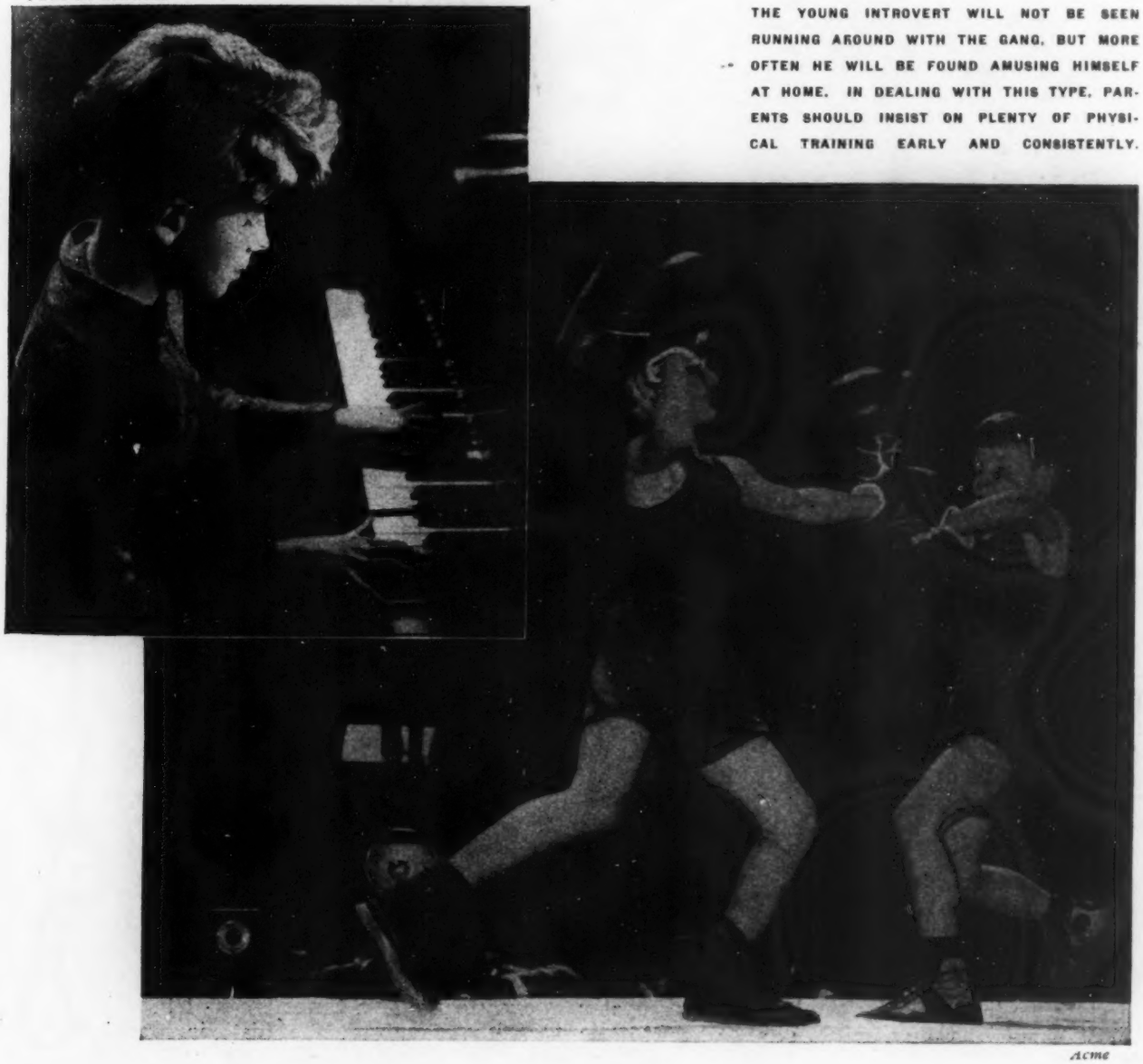
2. Harden his body. Give him plenty of outdoor life involving a reasonable amount of hardship. Let him learn to use his muscles in purposive, not random, activity. Let him learn to face unpleasant conditions without flinching or running away.

3. Help him to develop feelings of independence and responsibility. Because he is so susceptible to outside impressions he is in danger of becoming too much of a chameleon, too herd-minded, too ready to follow the crowd. Making him accept responsibility and live up to it will take a lot of patience on the part of his parents. The burden must not be made disproportionately heavy; but he must be encouraged in every way possible to finish the things he starts—if they are worth finishing.

4. Help him to learn self control and to avoid giving too ready outlet to his reactions. He should not be exposed to excessive stimuli, whether they be pleasant or unpleasant. He needs to learn moderation, and this is best learned by perpetual practice in situations that are not too emotional.

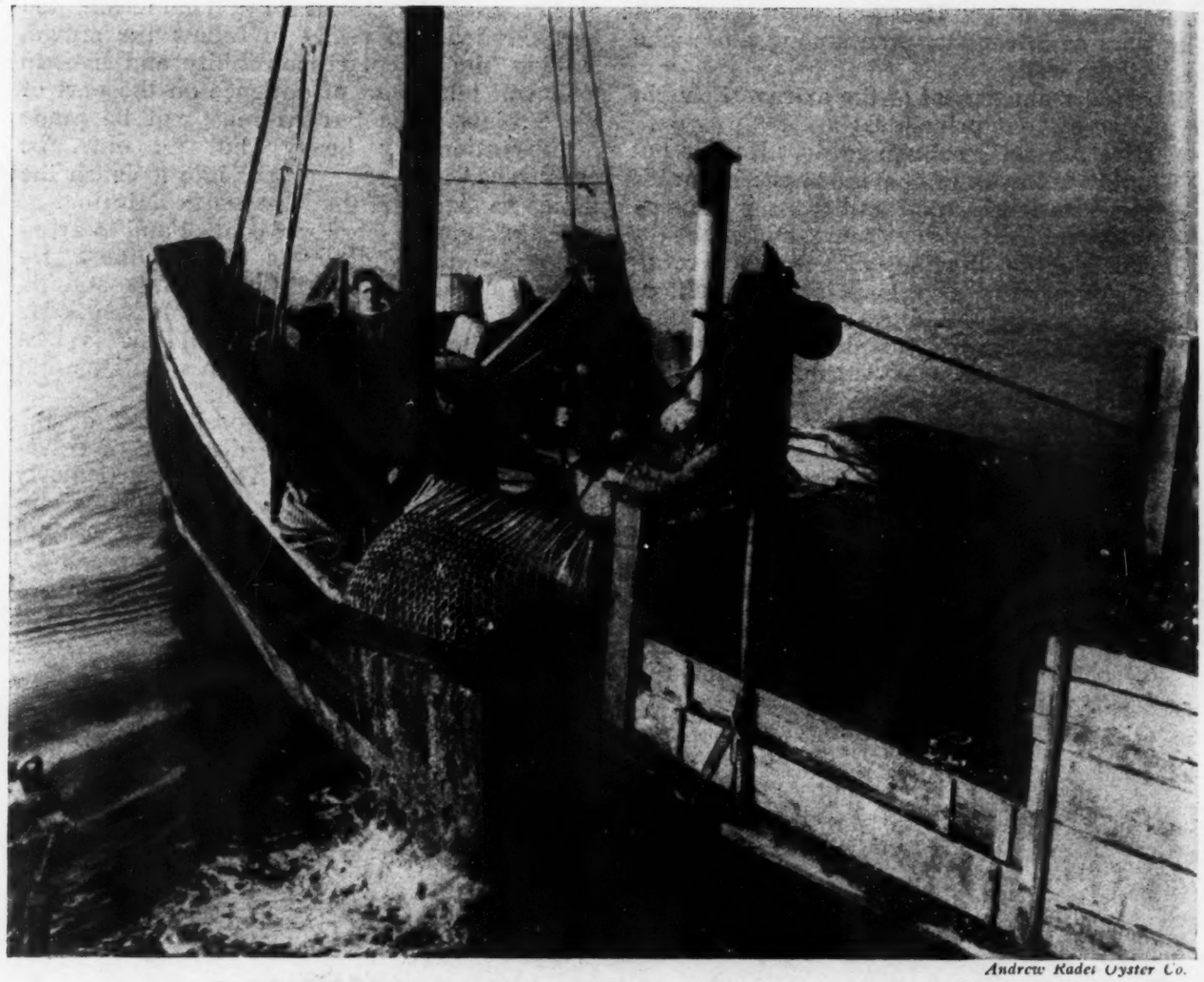
The introvert, on the opposite end of the line, can be pushed in the direction of extraversion to some extent. This is particularly important at adolescence: Although a certain amount of introversion is more or less normal at this age, it will be *(Continued on page 1037)*

Philip D. Gendreau



THE YOUNG INTROVERT WILL NOT BE SEEN RUNNING AROUND WITH THE GANG, BUT MORE OFTEN HE WILL BE FOUND AMUSING HIMSELF AT HOME. IN DEALING WITH THIS TYPE, PARENTS SHOULD INSIST ON PLENTY OF PHYSICAL TRAINING EARLY AND CONSISTENTLY.

Acme



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Oysters and Oyster Farming

By LEWIS RADCLIFFE

KNOWING THAT MANY will subscribe to that old classic that "he must have been a bold man who first swallowed an oyster," I have often wondered as to the underlying reason for widespread popularity of oysters, which dates back more than 2,000 years. For that matter, why do chimpanzees and other animals make regular journeys from distant inland points to the seashore to feed on shellfish and other seafoods? Did the presence of some concealed food requirement lead the American Indians to feed so extensively on oysters, as indicated by the hundreds of oyster shell heaps at many points along our Atlantic coast, with an accumulation of a million or more bushels of shells in one of these heaps? Is it really true, as alleged, that the fame of the British oyster was a deciding factor in the mind of Caesar when he set out on the conquest of Britain? That oysters were a highly prized delicacy among these early Romans is indicated by the location of their settlements in England near the oyster-producing areas and, in 78 B. C., their transportation of oysters at great expense in bags, tightly packed with snow and ice, to Rome for serving at banquets.

Horace, Cicero, Seneca, Pliny and many other ancient writers and philosophers have attested to the qualities and properties of oysters as a choice article of diet. And so as we come down to modern times we find that Americans have retained all the historic associations of

oysters with fine living, not alone as a dish for epicures but, thanks to our oyster farmers, as a common item of food available to the masses.

Limited supplies and the great popularity of oysters as a food resulted in early attempts at cultivation. For example, according to Pliny, about 95 B. C. one Sergius Orata introduced the artificial cultivation of oysters in beds at Baiae near Rome, and it was he who pronounced as preeminent in delicacy of flavor the oysters of Lake Lucrinus, imported from their natural beds at Brindisi.

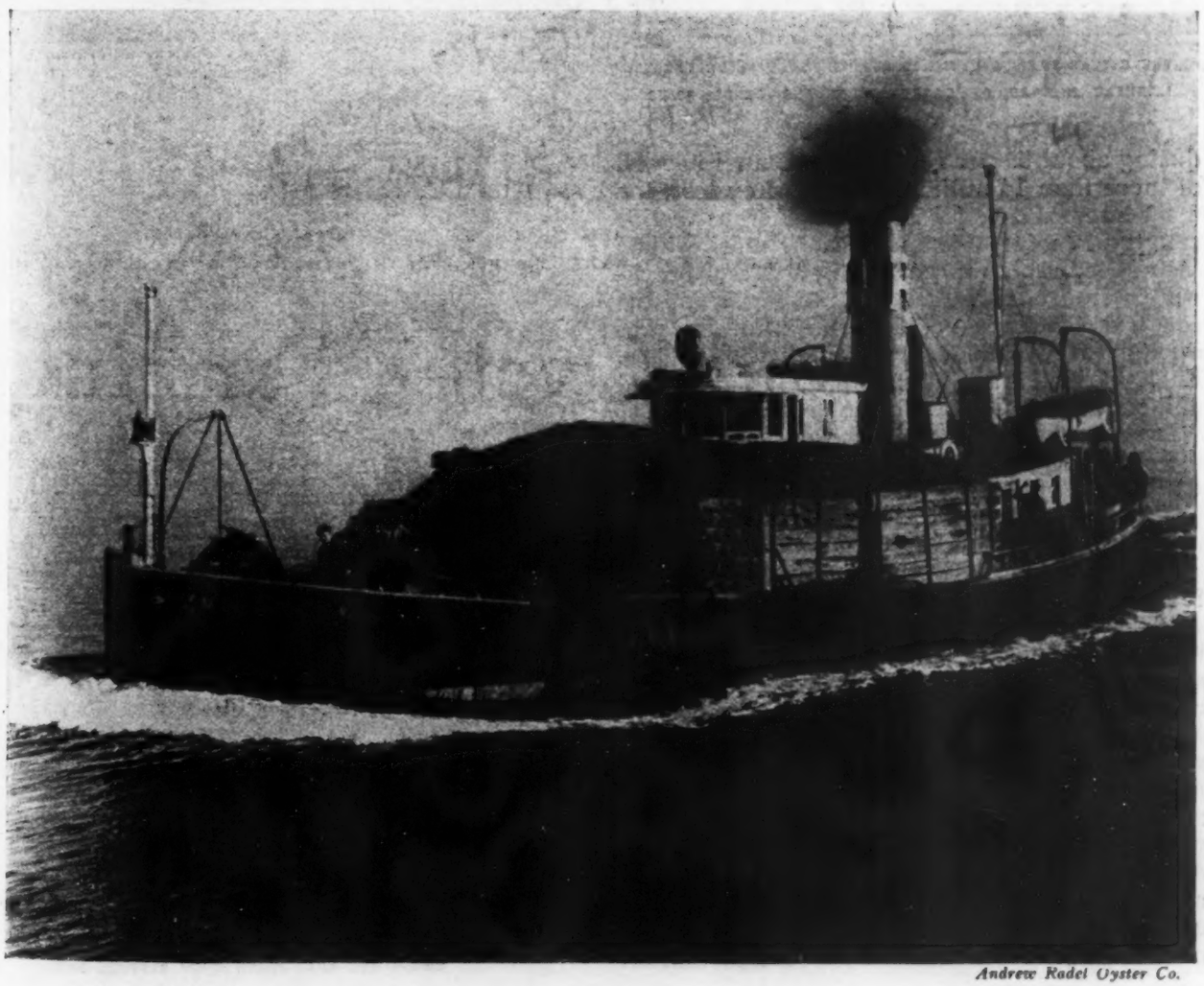
In March 1835 a schooner laden with Virginia oysters arrived at New Haven, Conn., too late for that season's market. To avoid the loss of the cargo, the oysters were dumped overboard in one of the nearby coves. The following fall it was discovered that these oysters had increased at least a third in size and were of most excellent flavor. This incident, which led to the transportation by schooner each spring of hundreds of thousands of bushels of Chesapeake and Jersey oysters for transplanting and marketing the following autumn, represented one of the earliest steps leading to the development of oyster farming in this country.

Prior to 1860 that famous savant, Monsieur de Costa, assisted by Captain de Broca of the French navy, had shown that larval oysters when ready to set would attach themselves to clean shells, tiles or brush—the first step in oyster farming to assure supplies of young seed oysters.

In the summer of 1862, Captain de Broca, acting under orders of Emperor Napoleon III, visited the United States to report on our oysters and the methods of cultivation in vogue. During his visit he suggested the practice of laying down old shells and brush near the beds of spawning oysters as a means of catching a set of young oysters. A local man present immediately adopted the suggestion and for his temerity was described as a lunatic for following the suggestion of a "frog-eating Frenchman who had the cheek to come to New Haven and teach our oystermen how to grow oysters."

From these humble beginnings has grown the great oyster farming industry of today, pro-

BECAUSE OYSTERS ARE OUR MOST WIDELY DISTRIBUTED SEAFOOD, THE ANNUAL HARVEST IS MORE THAN FOURTEEN MILLION BUSHELS.



Andrew Radel Oyster Co.

Oyster Institute of North America

THE OYSTER FARMER OUTLINES HIS "GROUNDS" WITH THESE MARKERS INSTEAD OF BARBED WIRE AND FENCE POSTS.

ducing about 60 per cent of our annual harvest of more than 14 million bushels of oysters, the most important of all underwater crops in this country. In fact, oysters are our most widely distributed seafood, growing in salt and brackish waters from Massachusetts to Texas and the coasts of the three Pacific states. Foreign production of oysters centers chiefly in France, England, Holland, China, Japan, India, Ireland and New South Wales, in the order named.

Oysters do not occur in the open sea but in the coves, bays, estuaries and mouths of rivers; that is, in partially enclosed waters rendered brackish by drainage from the land. These areas are favorable to the production of diatoms and other microscopic life on which the oyster feeds.

Our eastern oyster (Ostrea virginica), the most important of the 100 or more known species, begins spawning at water temperatures of 65 to 70 F. In our northern waters, spawning may occur during two or three summer months; in the Gulf of Mexico it may be distributed over a period of six months. The microscopic larvae are free swimming for a period of about fourteen days, after which they attach themselves to some hard, clean object, such as an oyster shell, a rock or branches, and remain on the object till it disintegrates or the oyster is torn loose. In the North, market

AN OLD SHELL NOW HARBORS TINY OYSTER SPAT; PRIOR TO THE TIME OF SPAWNING, THOUSANDS OF BUSHELS OF OYSTER SHELLS FROM THE SHUCKING HOUSES WERE PLANTED TO CATCH THE SPAT WHEN THEY SETTLED DOWN.

Oyster Institute of North America

THIS IS PART OF A PILE OF 400,000 BUSHELS OF SHELLS WHICH WERE DISCARDED BY THE OYSTER PLANT. THESE WILL BE GROUND INTO POULTRY GRIT OR LIME OR SPREAD OVER THE SEED BOTTOMS.

oysters may vary from 4 to 6 years or more in age, and in southern waters they may reach a market size in eighteen months to two years.

A natural oyster bed is an area of the bottom in which oysters have become established without the direct aid of man and which bears or has borne oysters in sufficient quantities to be of commercial importance. With the depletion of the natural beds, the state or other agency may aid in the maintaining of a sustained yield on these natural beds by the planting of shells, seed oysters or even mature oysters. Such activities, a form of subsidy, have accomplished little more than to prevent complete exhaustion of the supply.

As previously revealed, from earliest times man has endeavored to supplement the supply on natural grounds by the cultivation of oysters. To produce a crop requiring from four to six years or more to mature, the oyster farmers must have control over the grounds under cultivation. Connecticut was the first state to grant vested rights in oyster grounds. In 1842 it was made lawful for the owner of any land wherein there were salt water creeks or inlets, to dam, gage or lock these for his own use for growing oysters. In 1845 the law was amended to permit residents under certain limitations and restrictions to lay down or plant in navigable waters oysters brought from any waters within the state, and a year later a further amendment permitted the transplanting of oysters from extrastate as well as intrastate waters. Titles to the use of oyster lands are determined by the laws of the several states. In Rhode Island they are held under renewable leases, in Connecticut for the most part by perpetual franchise, and in New York they are owned in fee. The usual method in vogue now is to gain the right of use by lease from the state. Throughout the history of oyster farming in this country the free fishermen have vigorously opposed the granting of exclusive rights and by restrictive legislation have seriously interfered with such developments.

Of approximately 1 million acres of oyster-producing grounds, some 200,000 acres, or 20 per cent, are under private cultivation, yielding about 60 per cent of our annual harvest.

It is difficult to define the factors that determine the value or use of a particular oyster ground. In general, character of bottom, amount of tide, quantity of food and protection from storms are important factors. The value of such lands may vary from $25 to $1,000 an acre, although sales as high as $2,500 or more have been made. By trial and error the oyster farmer has determined the best use for each area, whether for setting (seed grounds), growing or maturing grounds.

The first problem of the oyster farmer is to provide for adequate supplies of seed oysters either by catching a set on his setting grounds or by purchase from other sources of supply. In the Long Island area, where favorable spawning and setting conditions may occur only once in four or five years, the shoal warmer waters near the shore are used. First the grounds are carefully cleaned by dredging up the old shells, débris and the natural enemies of the oyster. In the early summer just prior to the time of spawning, thousands of bushels of oyster shells from the shucking houses are planted on these grounds, usually at the rate of 500 to 1,000 bushels an acre. Spawning beds of mature oysters are maintained nearby, or large spawning oysters are scattered over the setting ground on top of the shells.

The fecundity of the eastern oyster is almost unbelievable. A single female may discharge from 100 million to 500 million eggs in a single season, while the male may liberate millions of mobile spermatozoa. Under favorable spawning conditions, in due time the old shells planted on the bottom may be literally covered with the tiny spat, the numbers sometimes ranging from 1,500 to 65,000 spat for each bushel of shell. After a set has been obtained, if the ground is reasonably safe from winter storms and ice, the young growing oysters may be allowed to remain for a year or more; otherwise in the fall they will be shifted to growing grounds. The term "seed oysters" is loosely applied to the set which is only a few months old and no larger than one's finger nail or to oysters of nearly marketable size purchased for planting on cultivated grounds. A current of water is set up by means of pulsating cilia, bathing the gills and aerating the blood. The microscopic food particles carried in this stream of water become entangled and drawn into the stomach. An adult oyster in warm weather may filter water at the rate of 26 quarts a day. On a well populated oyster ground the competition for the microscopic food of the oyster is very great and for best results should not be complicated by a crop of young oysters attached to an older crop underneath.

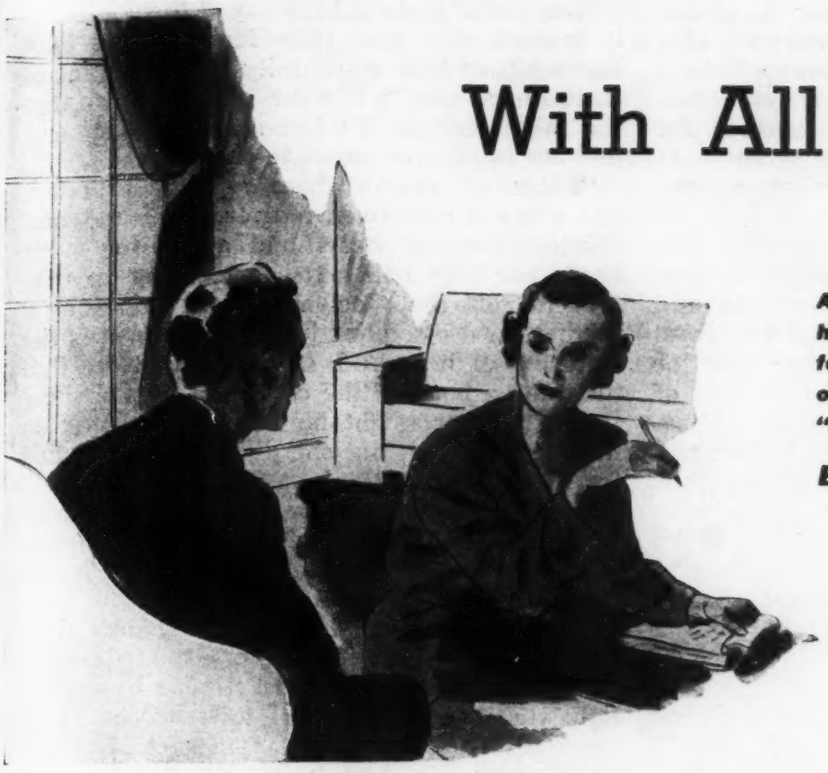
In order to meet this difficulty many oystermen have converted thousands of acres of useless bottoms on which oysters do not set into bottoms suitable for transplanting the seed oysters where they will be freed from many of the dangers to oysters on natural grounds. The seed oysters are planted about 300 to 500 bushels to the acre, depending on the richness of the set and character of ground. At the end of a year, when the quantity of the crop should have doubled, about half of the crop is thinned out and moved to other growing grounds to prevent crowding, which might result in ill-shaped oysters and a high mortality. The same process is usually repeated during the next two years. Therefore at the age of 4 years the oysters may have been transplanted two or three times. However, the mortality is so high that probably not more than 2 or 3 per cent of the original spat has survived and but a small fraction of 1 per cent of the original spat is ever matured.

Having reached a marketable size, the oysters are removed to maturing grounds usually in water of 2 or 3 fathoms, where an abundance of food will fatten the oysters for marketing.

The upland farmer has a continuous battle with weeds, bugs and other enemies to his crops, as well as the dangers of hail, flood and extremes of temperature. The oyster farmer wages a continuous warfare against the depredations of starfish, drills, drumfish, conchs, mussels, boring sponges, boring clams, leeches and other enemies and is subject to losses from storms, winter ice, silt, drifting sand and other factors. Unlike the upland farmer, he has to work in the dark in that he cannot actually observe what harm is being done to his crop. The story of the many ways in which these enemies are able to get to the delicate tissues of the oyster encased in its calcareous home and the devices perfected by man to minimize these destructive evils is an interesting chapter in itself.

Oysters are harvested by means of hand-operated scissor-like tongs and with dredges, dragged over the bottom. Market oysters are sold as shell-stock, as fresh opened (shucked) oyster meats, quick-frozen in packages or as canned (processed). Oyster meats are graded according to size, the most common sizes for our eastern oysters being A, "Counts," or extra large; B, "Extra Selects," or large; C, "Selects," or medium, and D, "Standards," or small. "Counts" will usually run less than 160 oysters to the U. S. standard gallon and "Standards" 275 or more.

Oyster grounds are subject to constant supervision by state health authorities and are governed by requirements approved by the U. S. Public Health Service as to bacteriologic standards of purity of the waters. Marketing permits, issued by the state authorities and endorsed by the U. S. Public Health Service, are necessary before the oysters may be marketed. Such supervision also extends over the packing houses in which the oysters are prepared for shipment to market, and the regulations usually require that the workers must undergo frequent medical examination to show that the applicant is free from infections and contagious diseases. Additional safeguards are applied by the Food and Drug Administration of the U. S. Department of Agriculture and the municipal authorities in consuming centers. "It is doubtful," states Fishery Circular No. 21 of the U. S. Bureau of Fisheries, "whether any food product in this *(Continued on page 1024)*



With All Its Faults

Alice and Bob Abbott find that they have much for which to be thankful; for even with the phones that ring too often and radios that work overtime, "it's a pretty good age to be living in."

By LUCRETIA PENNY

"ONE THING MORE off our minds and into the notebook," Alice Abbott said as she put the notebook labeled "Betty" back into her desk and took her knitting to the chair beside her husband's in front of the fire.

Bob looked up from his paper questioningly. "What are we recording tonight?"

"That Betty's Schick test was negative."

"And so goes diphtheria off our worry list along with smallpox and typhoid. And if scarlet fever or whooping cough or measles breaks out in our midst, Dr. Culver will decide what is best to be done to protect the children against them or to make an attack less dangerous. Great progress has been made in the treatment of these diseases in recent years." He paused, watching his wife's lips form an indulgent smile. "Yes, Mrs. Abbott, I know I sound like a platform lecturer, but you see I like the sound of certain facts of which I'm fond."

Her fingers swiftly moved the blue yarn stitches from one needle to another. "Go on," she urged. "I like having a husband whose children's health is his hobby."

"Well," he said boyishly, "you must admit that with all its faults this is a pretty good age to be living in, mustn't you?"

She nodded. "If the telephone *does* ring too often, and the neighbors' radios *do* work overtime, and the traffic problems *are* a long way from solved."

"With all its faults!" he mused. "You know every time I see one of those notebooks that you keep the children's health accounts in, and every time I pay a doctor or a dentist for preventing trouble for us, I can't help feeling thankful we're living in this century. Every time one of the Abbott small fry presents a behavior difficulty that might become a serious problem if handled without understanding I'm thankful again. By the way, did Sis see you? Fred said she wanted to talk with you about Ronny."

"Yes, she was over this morning. Ronny's showing fear of the dark, and she and Fred wanted to decide how best to deal with it. We talked over the experience you and I had helping Bobby over his fear of dogs. I gave her the book we thought we got the most out of and a list of others she could get at the library and suggested that if she felt she needed further help she might make an appointment to talk with the school psychiatrist."

"Lucky Ronny! Time *was* when a spanking or a scolding or a shaming might have been considered proper treatment for a little boy's fears." Bob folded his newspaper and leaned back in his chair, his eyes on the old sampler in the carved walnut frame above the mantle. Tiny cross-stitches of green and brown traced a delicate border which enclosed the words:

This is my sampler
Here you see
What care my mother
Took of me

Eunice Ann Abbott
Aged 10 Years
February 1837

"Did Aunt Louise ever tell you about Eunice Ann's family?" he asked.

She shook her head. "Very little. I remember that when she gave us the sampler she said that the child who made it lived little more than a year after it was finished. She spoke, too, of the fact that the hand-hewn stones in the family graveyard show that two brothers of Eunice Ann—little fellows—died within a week of each other."

He nodded. "Of a 'horrible croup' that was probably diphtheria. There were eight children in the family, and my great-grandfather and his brother Oliver were the only ones who lived to be grown. Aunt Louise, with her flair for genealogy, dug up a rather complete history of Great-great-grandfather Abbott, his wife Elizabeth and their children. From old letters and records she collected, it should be possible, without depending too much on the imagination, to piece out a fairly accurate picture of the family's life."

Alice finished counting stitches and smiled at him encouragingly. "Go on," she said, "I want to hear it."

JOEL ABBOTT SR. was a preacher, a circuit rider with a small inheritance that made it possible for his family to escape the lean days so often a part of the life of such a family. He was 21 and Elizabeth was 16 when they were married and left their North Carolina homes for a new one "in the West," as far west in fact as Tennessee. That was in 1820. The following year, after the birth of Mary Dorcas, Elizabeth wrote to her sister: "I have named her for our mother. I pray that I may take good care of her. That is now my first thought and greatest wish." Good care for her children must have continued to be Elizabeth's first thought and greatest wish through the years. She mentioned it often in her letters, and others referred to her always as a devoted, conscientious mother.

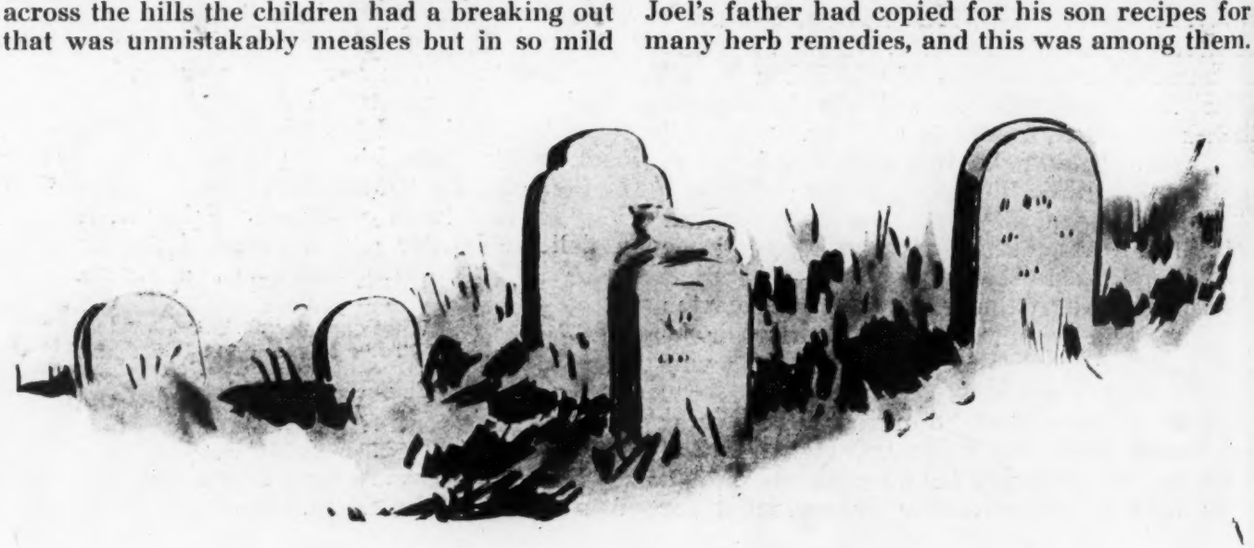
When Mary Dorcas was a little more than a year old her father rode home one evening with the news that in a family some five miles across the hills the children had a breaking out that was unmistakably measles but in so mild a form that it had not kept any of them indoors. It seemed wise that little Mary Dorcas take advantage of this opportunity to have an inevitable illness over while she was young, so that she might escape it when she was older and had her burden of duties to carry.

"There are certain diseases to be expected, and measles once over, is over," Joel said, and Elizabeth, whose heart had ached for every bump her baby had taken in learning to walk, told herself that Joel was right and that a mother must discipline herself to bear even the suffering of her child, since life requires that this too be borne. She could not help wishing that a mother might be allowed to suffer in her child's stead; but she did not tell Joel this for fear he might think so idle a wish wicked. Instead she held her voice as steady as his own and said, "I think it would be well for her to have the measles now while the weather is still mild."

Next morning she brushed the baby's dark curls, buttoned her into a homespun dress on which she had taken the last stitches by candlelight the night before and took her on Joel's horse across the hills for the measles. She was doing what was best to be done, of that she was sure. She had the strength to be a good mother to the child she loved, looking into the future and refusing to let what would be easiest today obscure what would be best in the years ahead.

It was a help to remember as she rode, with the baby's soft fat hand clutching at the bridle rein, that she had been told measles was kinder to children than to adults. Was it not possible then that with a child so young as Mary Dorcas the disease might be little more than an unsightly rash? Would this not be especially likely since it was "to be taken" from cases as mild as those Joel had described?

There was comfort too in the knowledge that she had the proper herbs to brew the drink that would cause the measles to break out well. Joel's father had copied for his son recipes for many herb remedies, and this was among them.



Elizabeth did not like to think of an illness requiring a doctor, but should it come to that the mild weather would make it possible for a doctor to be with them by the second day after a messenger was sent—if the doctor could be found at home. She covered the little active hand on the bridle rein with her own and put aside the worldly thought that this baby skin was too lovely, too perfect, to be marred even for a week by an ugly rash.

The weather was still mild when Mary Dorcas died. Elizabeth folded the new homespun dress about a piece of paper on which she had written, "Our little Mary Dorcas wore this once," and put it away in the bottom of a chest. Joel was born that winter, and his death and that of Nicholas, just younger, occurred in the same August week three years later. Hester Elizabeth was born on her mother's birthday in October of the year the boys died. "I want to learn all that can be of help to me in taking good care of my little namesake," Elizabeth wrote to her sister. "If you have any new knowledge of what can be done to keep a baby in good health and to cure an illness quickly, please send it in your next letter."

"OLIVER HAS BEEN SO TORMENTED WITH AN EARACHE; AND ROASTED GARLIC THRUST INTO HIS EAR SEEMS TO BRING NO RELIEF."

Eunice Ann was the fifth child and Martha Sarah the sixth. Elizabeth was ill of a slow fever after Martha Sarah's birth, and the child did not thrive on bread soaked in cow's milk to which a few drops of whisky had been added. Joel's aunt, who had come to help, tried various herb teas, but Martha Sarah did not live more than a few weeks. Oliver was the next baby and then Charles.

In her letters, Elizabeth speaks of her great thankfulness that Charles had come safely through his dreaded second summer. She begs that her sister write her quickly if she knows of a remedy to ease an earache, as Oliver has long been so tormented, and roasted garlic thrust into the ear brings him no relief. She regrets that Eunice Ann, lacking Hester Elizabeth's brave spirit, cries out often in the night in terror for which there is no reason. It is hard to keep from rising to go and comfort the child; but she and Joel know that such a fear must be conquered alone.

Hester Elizabeth died of "a malignant fever," and Elizabeth wrote, "She was the one most like me, and a part of myself was buried with her; but I try not to think of that, for my whole mind and all my strength are needed for the care of these three left to me. Eunice Ann is learning her needlework nicely, having inherited the gift of doing it well from her Grandmother Abbott whose bad headaches also she unfortunately inherits. These we hope she may outgrow. She is a great help with the younger children but lacks still a brave spirit and at times controls her tongue but poorly. These faults we hope to correct."

Eunice Ann worked at her sampler for an hour every morning, and often on rainy days if there was no darning to be done she brought out her work again in the afternoon when the light fell dimly through the small-paned windows. Once she complained in sudden irritation that she hated threading needles and threw her work on the floor. To correct so lamentable a spirit her mother set her to memorizing a page in her father's hymn book, verses selected to meet her immediate need; and the child, when her storm of tears was over, bent her dark head obediently over lines that for the remainder of her life were to be her last shuddering thought at night:

> Show pity, Lord, O Lord forgive,
> Let a repenting rebel live;
> Are not thy mercies large and free?
> May not a sinner trust in thee?
> Oh! wash my soul from every sin!
> And make my guilty conscience clean!
> Here on my heart the burden lies,
> And *past offences pain my eyes.*
> My lips with shame my sins confess,
> Against thy law, against thy grace;
> Lord should thy judgment grow severe,
> I am condemned, but thou art clear.
> Should sudden vengeance seize my breath,
> I must pronounce thee just in death;
> And if my soul were sent to hell,
> Thy righteous law approves it well.

After that there was no more outward rebellion over the sewing, and if in Eunice Ann's troubled mind the pain she so frequently suffered in her eyes was ever after associated with a feeling of guilt for past offenses, she shared the worry with no one. The finished sampler was an exquisite thing. Eunice Ann was proud of it and said so, shyly. Elizabeth, although to her sister she admitted that she too was proud, reminded her little daughter that one must ever cultivate a sense of humility and quoted, "Let honor and virtue be your guide and they will keep you free from pride." The sampler, she added, was well made; but there were fewer stitches in it than there were in the one Hester Elizabeth had embroidered.

"But I like my verse better," Eunice Ann said. "I do not like

> The short-lived day declines in haste
> The night of death approaches fast,
> With rapid speed the moments run
> In which the work of life is done."

"But it is true, my daughter," Elizabeth told her. "In the midst of life we are in death." She wished that she might say how lovely the sampler was, but the child must not be made vain. Her heart was touched by the words, "What care my mother took of me." God knew her dearest wish was to care well for the children he had left with her, and particularly did she feel that Eunice Ann needed her wisest care, this child who sometimes controlled her tongue poorly and who did not seem able to conquer the fears that came to her again and again with the coming of darkness and were not driven away by the mother's reminder of how brave Hester Elizabeth had been or by the repeating of hymns.

A year later when Elizabeth wrote to her sister that Eunice Ann was at rest at last from the cough that had so long persisted in spite of the tincture of sulfur they had regularly given her, she quoted in her letter:

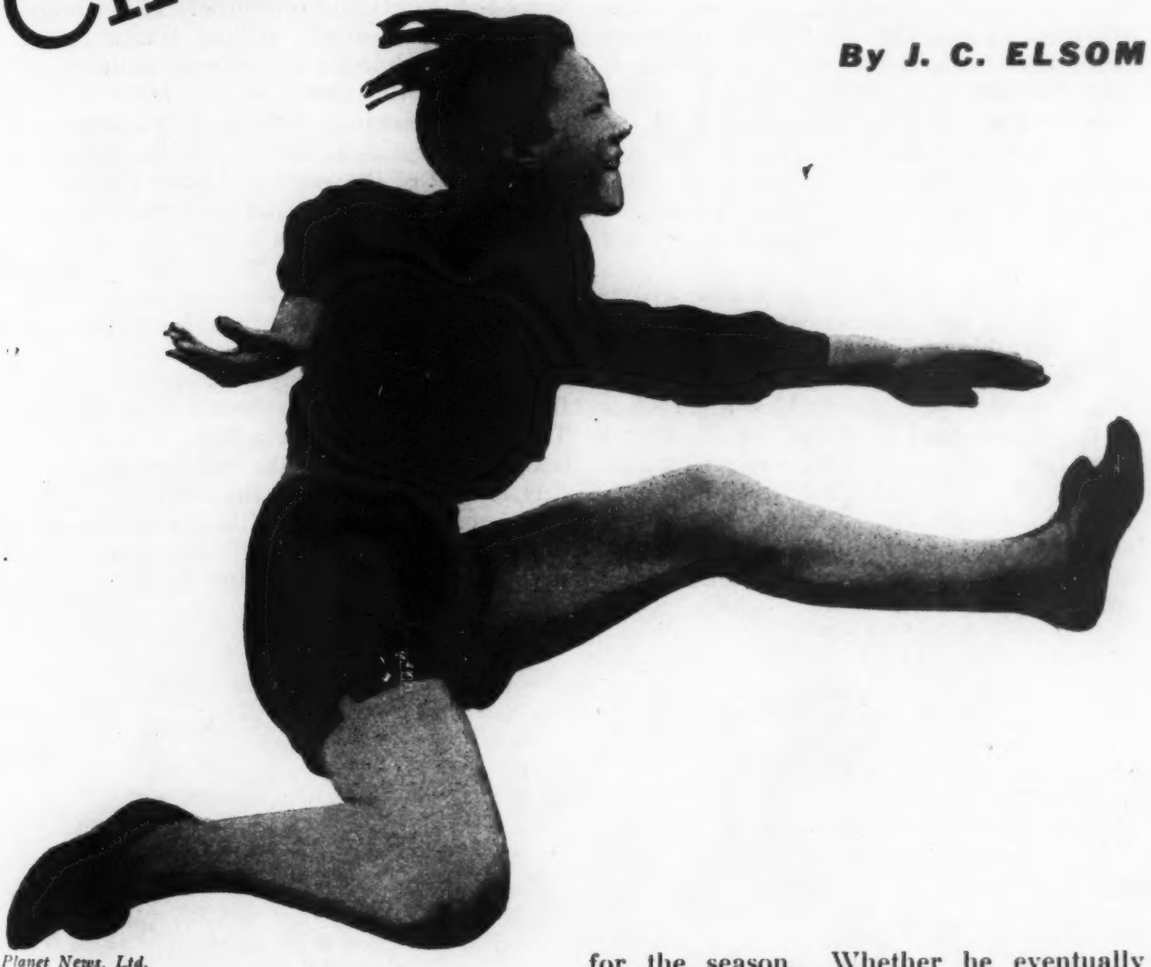
> Dangers stand thick through all the ground,
> To push us to the tomb;
> And fierce diseases wait around,
> To hurry mortals home.

ALICE ABBOTT had let her knitting rest and was looking at the sampler when her husband finished speaking. "Perhaps," she said, "I should not even envy Elizabeth her courage, when I have for my children so much that she would have wished for hers. It isn't always easy to remember, but ours *is* a better age to be alive in."

"With all its faults," her husband nodded.

"Charley-Horse"

By J. C. ELSOM



Planet News, Ltd.

IT IS SAID that somewhere, sometime, a celebrated horse whose name was Charley took part in a notable race, in which the betting was high in his favor. For a lap or two he was far ahead of the rest. The day was cold. Charley horse had not sufficiently "warmed up." Suddenly, without apparent reason, he collapsed with a leg injury; his trainers said he had "pulled a tendon." More probably some muscle fibers in his leg had ruptured from sudden and severe strain. Charley was out of the race for the season. Whether he eventually recovered and appeared on the turf again is not a record of history.

From this uncertain myth the term "charley-horse" has been introduced into athletic vocabulary. The name, of course, has no specific meaning; in fact, the injury so common to athletes and in sports generally may mean any of a half dozen things. Some of these may be relatively trivial, others quite serious and apt to be followed by chronic and persistent disabilities. Athletic coaches and trainers should understand the multiple nature of the so-called charley-horse and should realize the dangers which may result. As a rule these conditions are passed over lightly, and improper treatment is given. In view of the fact that thousands of young men and women engage in athletic

contests throughout the year, there should be a better knowledge of the traumatisms which commonly are loosely called charley-horse. An attempt is made herewith to classify some of these.

Contusions, or bruises, are the most common injuries. In games of personal conflict, such as football, wrestling and boxing, they are almost inevitable. The football player receives frequent concussions in tackling and in scrimmage generally. Contusions are caused by blows and falls. The skin may or may not be injured. Usually the muscular and other tissues are crushed and torn in varying degrees. In football there is apt to be a succession of bruises in a single game or on successive days. Often small blood vessels are ruptured in the area of the bruise, and there is more or less subcutaneous hemorrhage, the characteristic "black and blue" appearance which soon shows itself, attended by pain, swelling and disability of the part.

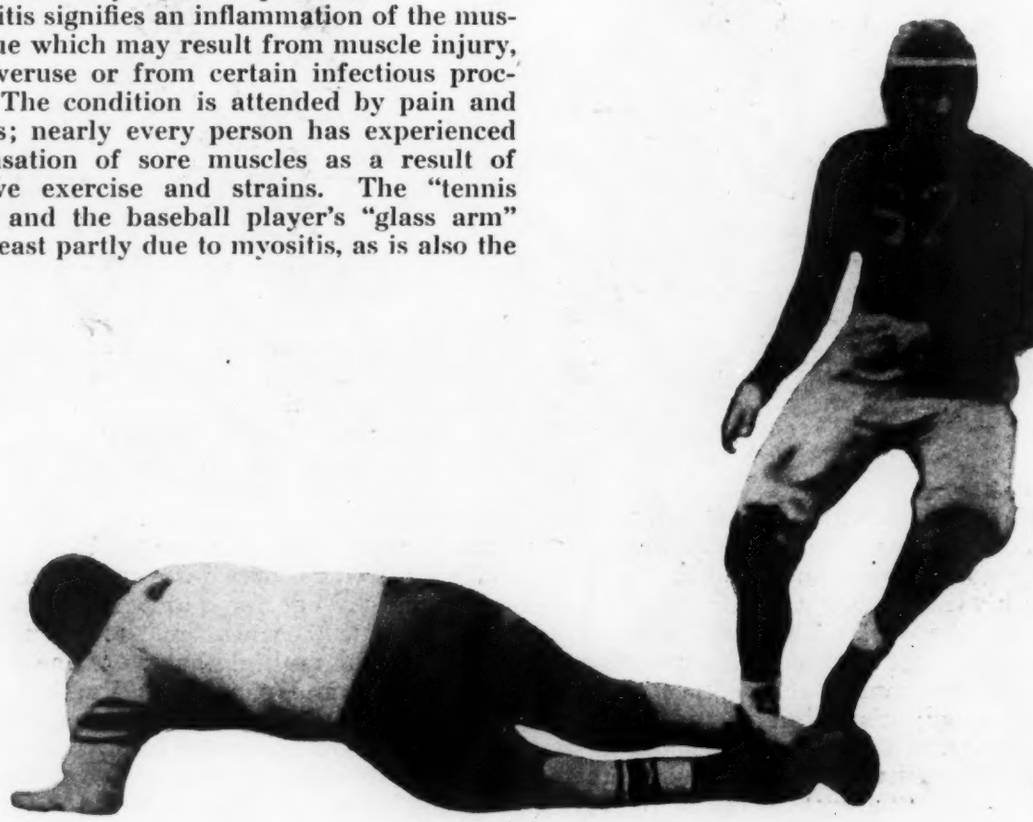
This hemorrhage may be only slight and is soon absorbed. However, a considerable clot, which is termed hematoma, may form in the muscular tissues. Nature has great difficulty in absorbing a large clot, and unless the clot is surgically opened and drained, eventually a deposit of lime salts, a calcific deposit, forms around the clot, and considerable disability may be the permanent result. A small hematoma may become a large accumulation of blood by successive injuries received in football. When calcification appears in chronic cases, x-ray examination may detect its presence.

Myositis signifies an inflammation of the muscle tissue which may result from muscle injury, from overuse or from certain infectious processes. The condition is attended by pain and stiffness; nearly every person has experienced the sensation of sore muscles as a result of excessive exercise and strains. The "tennis elbow" and the baseball player's "glass arm" are at least partly due to myositis, as is also the "rider's leg" which is caused by gripping of the saddle by inexperienced horseback riders.

Actual tearing of muscle fibers is a common result in charley-horse. This causes, of course, sudden and immediate disability. The sarcolemma, the sheath which encloses muscle fibers, may also be torn, resulting in rupture, or hernia, of parts of the muscle. An inflammatory condition ensues which may last for a long time, attended by pain and swelling.

In deep bruises and concussions the tissue which covers the bone (periosteum) may become injured and inflamed. This condition is known as periostitis. When a muscle mass is struck by a hard blow, which so often occurs in football, the brunt of the blow affects the deep lying tissues. Muscle fibers near the surface of the thigh, for example, slide or are pushed out of the way; but near the bone there is not the possibility of so much movement. Hence the force of the blow affects the deeply seated tissues, and the periosteum lies next to the bone itself. Even the bone may be injured and bring about an infected condition called osteomyelitis, which is extremely serious.

The muscle fibers taper toward each end and form a tough gristly substance called tendons. These are enclosed in a kind of sheath which becomes inflamed from rubbing or pressure; this is notably true of the Achilles tendon, or heel cord. In tenosynovitis the tendon becomes tender, swollen and roughened and may often present a grating sensation to the examiner's



fingers when the tendon is moved. The so-called "pulling of a tendon" rarely occurs, since the tissue is remarkably strong and resistant. However, a sudden and violent action of the tendon may actually separate a small fragment of the bone to which it is attached. This occurs more often in severe sprains and twists of the ankle.

It will be seen from the above that charley-horse may present a multitude of evils and may combine several of the conditions previously mentioned. It is not a simple thing to be regarded lightly. The star football player is often forced into a game before his injury is completely healed. Additional damage is thereby accumulated, and serious results accrue.

Since prevention is better than cure, it is advisable to guard against injuries to exposed parts which are liable to sustain contusions, especially the thighs or shoulders. Adequate padding should be applied to these parts to lessen the possibility of shocks and contusions. When the accidents described have actually occurred, rest is the most important element in treatment. Nature must be allowed to bring about the beneficent healing process. Better is a rest of a few days out of the game than an additional injury that puts the player out for a season. The severity of the injury cannot be determined at first; a physician should be consulted for a careful examination and a correct diagnosis. For the immediate treatment of the injuries described, cold applications, such as ice packs and cold towels, are probably the best. Later, perhaps within a few days, some of the various forms of heat are indicated, such as radiant heat and light, hot packs and diathermy. Mild applications of heat, long continued and frequently applied, are better than short treatment by heat intensely applied. A supporting bandage should be employed after the treatments. Massage is unnecessary in the recent cases and may be distinctly injurious if used, for example, in a recent hematoma. Rough kneading may cause further hemorrhage. After acute symptoms have subsided, massage may be useful if skilfully done. It should never be so rough as to cause pain. It must again be emphasized that a correct diagnosis is of the utmost importance, and it must always be remembered that a charley-horse deserves adequate rest, prompt treatment and utmost respect!

IN FOOTBALL, THE PLAYER MAY RECEIVE FREQUENT CONCUSSIONS IN TACKLING AND IN SCRIMMAGE GENERALLY. THOUGH MANY INJURIES ARE LIGHTLY DISMISSED AS CHARLEY-HORSE, THEY ARE MATTERS FOR THOROUGH INVESTIGATION AND PROMPT CARE.

Playthings

from Toddler to Teen Age

By LOU TREGONING

TODAY, TOYS or playthings are not selected merely to consume a child's time, to keep him out of mischief or out from under foot. Parents have come to realize that playthings are the child's tools of self expression, that they help him to develop physically and to learn about everyday living at his own level of intelligence.

Materials for wholesome play are recognized as being vitally important in helping the child to attain a well integrated personality, one of understanding which would include harmony and the mastery of motives within himself. Play may help him to attain major purposes and goals in life, to have good control and to get along with his fellow beings.

Playthings should vary in type for different ages, as it is well known that children go through various stages of development during certain years. However, age serves only as a guide in selecting the type of toy, as the plaything should be suited to the child's social life and mental development.

The baby first learns to use his eyes; so he needs large, colorful toys, such as spool dolls, strings of large beads or blocks hung where he can see them. Later, as his sense of taste is developing, everything goes into his mouth; so beads, blocks and dolls need to be painted with permanent finishes that won't come off. Colors should be soft and artistic. A soft cuddly dog, a rubber duck for his bath and toys of various textures promote his sense of feeling. About this time he begins to realize that he has ears and a nose, so playthings should be durable with no sharp edges or loose parts to get into ears, nose or mouth.

Articles found in almost every home give the baby his greatest pleasure; spools, clothespins, wooden spoons, pie tins and potato mashers are among his favorites. Small blocks can be introduced at about 4 months when he will enjoy throwing them and knocking them together for noise. Throughout these first few months, toys have helped him to develop his senses.

Large muscles gradually come into play; as he reaches for his toys, he strengthens neck and arm muscles. He stacks and unstacks his blocks, loads and unloads his small wagon with them. A large brightly colored ball that rolls from him and requires his efforts to recover it will encourage walking at about 10 to 12 months. The baby should have a place to play near his mother while she is doing her house work. He may have a play pen; but at least he should have ample space to move about in as he must develop muscular strength. Tumbles should not be fussed over, and he should be encouraged in any new effort he undertakes. Give him playthings that are not too difficult but hard enough to challenge his abilities.

When the child begins to walk, active play indoors and out should be encouraged. Push and pull toys are especially good. The toy wagon should be well balanced so it won't turn upside down. Sand tables and sand piles with pails, bottles, scoops or large wooden spoons are of lasting pleasure and benefit, for through using them the child learns muscle control and

forms ideas about weight, texture, measure and form. Indestructible picture books, balls, clay, crayons and peg boards provide wholesome indoor play which furthers the coordination of muscles and senses. Baskets for holding small objects and boxes for pushing about are desirable. Blocks will now be laid in rows, hauled about, stacked in the sand and used in many ways. During these two years the child has played alone but he now begins to show a friendly feeling toward other children.

At about 3 years, the "make believe" or dramatic age begins. He will build towers and fences with his blocks, and dolls will need houses, clothes and carriages; the everyday living of the grown-ups is being dramatized. Dolls are loved, dressed and undressed, spanked and put to bed. The child plays at housekeeping, dramatizes stories from books or adapts his play to what he knows of living. Freedom of expression in play at this age may have a lasting effect on a child's life. It is a well known fact that Edison in his early years of play did a great deal of experimenting with various materials. Designers, actresses, engineers—all may have their beginning at an early age.

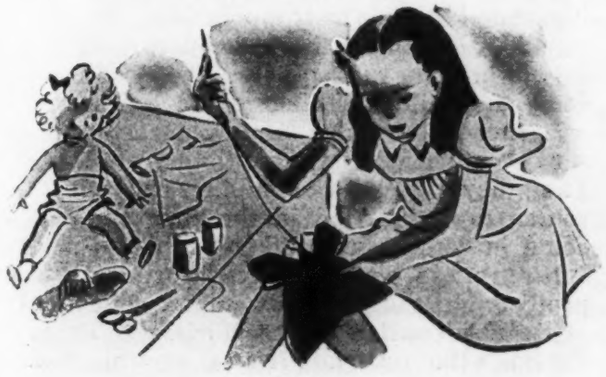
The construction age appears from 3 to 6 years of age. Weaving, painting, sewing, block houses, fences and other construction take place with the "do with" materials. Mechanical devices in which the toy does all the work and the child does nothing foster idleness and a desire to be amused. During these years, rhythm, music and art are introduced as a foundation for a rich cultural life. When hammers, nails and saws are given to the child, proper supervision and material for the purpose will prevent their misuse. Furniture for the play house may be made. If the piano bench is going to be ruined with nails, then the tools should be put away until the child learns their proper use.

Games that stimulate interest in school subjects, such as anagrams, map puzzles and travel games, typewriters, blackboards, printing sets, electric trains, power houses and other equipment may be included during the 6 to 12 year interval. There are many articles that create interest in science and mechanics that help the child to understand the laws of nature and control of environment.

Hobbies and special interests appear with the adolescent age. Wholesome recreational activities should be maintained. Competitive games develop power and skill, help to foster cooperation and sportsmanship. Outdoor games such as baseball, tennis and football may contribute to good posture, muscle coordination, judgment and analyses of how and why, and may build intimate relationships between the senses, muscles and nerves. Indoor games develop intelligent skill. The greatest skills are developed during late adolescence; but psychologists agree that such motor skills as skating and dancing in childhood have advantages. The child learns these easily, because of his plasticity; he is less self conscious and has more time to master technics.

The child who can run, climb, jump, hammer nails, sew, weave, play tennis or some game and perform in other activities has valuable resources for adjusting himself and for making effective social contacts with his fellows. Nor does play cease in adult life—it still serves to satisfy the desire for recreation and pleasure, though it narrows itself down to one or two activities, some of which are golfing, collecting, photography. In other words, the oldster leans toward one or two hobbies.

Childhood play makes the man, developing him physically and mentally, expressing his emotional life, offering him an outlet for his mental and emotional conflicts and stimulating interest in life's practical and esthetic sides.



TESTS FOR TOYS

1. *Are they safe to use? There should be no small parts to become loose; they should be painted with fast color and nonpoisonous material, be easily cleaned and have no startling noises for small child.*
2. *Are they durable in material and workmanship?*
3. *Are they artistic? They should be simple in form, harmonious in color and genuine in expression.*
4. *Are they adapted to the child's age and his continued use?*
5. *Have you a place for the child to keep his playthings in order?*
6. *Have you a place for the toys to be used? Floor space is the most logical.*

"OH, IT'S JUST A COLD!"

ANNUAL COST—$3,000,000,000

MOST PREVALENT DISEASE

Costly and serious, this contagious condition is generally taken all too lightly as a necessary evil which must "wear itself out," says JAY N. FISHBEIN

THE OLD SAYING that familiarity breeds contempt was never more true than in regard to the question of colds. Because "every one" has them, colds have been generally regarded with indifference as a common minor ailment and carelessly relegated to the realm of unimportance. The "common cold" is not considered sufficiently important to require a doctor's attention and usually receives home treatment, of which there seems to be an infinite variety.

Before Pasteur's discoveries opened the way for a scientific investigation into the bacteriologic aspects of the common cold, many strange beliefs were held regarding its cause. The Greeks considered it to be due to an accumulation of poisons in the blood. In the Middle Ages it was mostly attributed to witchcraft. Later it was believed to be the result of a flux from the brain. It was these queer notions that gave rise to the taking of snuff for the purpose of clearing the brain.

Three fourths of the population have at least two colds a year, which places the common cold at the head of the list as the most prevalent of all diseases, particularly among children. Following the influenza epidemic of 1918 the Metropolitan Life Insurance Company made a study of the common cold. Their statistics showed that nearly one half of the diseases from which man suffers are in the respiratory tract; that is, in the nose, throat or chest. Sex has no bearing on colds. It is just as common among males as among females. Occupation however is a factor. Contrary to popular opinion the person who works in an office has nine times as many colds as the cab driver or policeman who works outdoors in the rain, snow and sleet. The people in the United States suffer 200 million colds every year. The average cold lasts about a week and usually results in the loss of several days from work. Estimating the time lost, doctor bills and medicines, the cost of the average cold comes to about $15. Adding it all up brings the annual cost to $3,000,000,000!

Despite this staggering total and the importance of colds to society we still do not know what causes them. Ever since Leeuwenhoek first revealed under the lens of his homemade microscope those wiggling bodies now known as bacteria, scientists have wondered and searched, attempting to discover the cause of colds. The organism causing colds has eluded their most painstaking efforts. They have searched diligently but in vain. Carefully and hopefully they have isolated all the germs found in the nose, only to discover that the cold was caused by some mysterious invisible germ or substance that could not be identified. This unknown virus was classed as a filtrable virus because it had the ability to go through the finest filter that could be devised. It defied microscopic detection, yet was powerful enough to produce colds.

This invisible virus probably initiates the attack on the nasal membrane by paralyzing the defense mechanism when the resistance of the individual has been lowered through any cause, rendering him susceptible. Once this resistance has been broken down, the bacteria which are present in the nose then attack in full force, producing the inflammatory reaction designated as the common cold.

What protection have we against colds? Nature has given us an elaborate system of defense that even surpasses in ingenuity the famous military Maginot line of France. The fact that we have so many colds in spite of nature's safeguards is due chiefly to our own carelessness and is also a product of our advanced civilization. Colds were unknown among the savages until the white man brought them, along with the other "benefits" of "civilization." The Eskimos knew nothing of colds until they came in contact with the white man; and not having acquired resistance against them, they contracted pneumonia and died like flies. The fact that cold weather has nothing to do with the production of colds is further illustrated by the fur trappers who visit the Far North. Sometimes these trappers will have a cold when they first leave the trading post. Once that cold has cleared up, however, they will spend the entire winter in zero and subzero weather without contracting another one. Then they may contract another cold when they return to civilization in the spring and again come in contact with other people.

Nature has well conceived fortifications for protecting the upper air passages. The first line of defense consists of the vibrissae. These are the hairs that protrude from the nasal openings.

200 MILLION COLDS A YEAR

CAUSE UNKNOWN

Harold M. Lambert

EACH COLD COSTS $15

4 LINES OF DEFENSE

OUTDOOR WORKER HAS FEWER COLDS

They are thick, stiff bristles that grow from the sides of the orifices toward the center in such a manner that they interlace and serve as a filter. These highly efficient sentinels guard the nasal openings and serve to protect the nose from the invasion of any large particles that might be carried through the air and irritate the delicate linings. Nature has endowed the male with a more luxuriant growth, as he is often engaged in occupations that require greater protection. If you have ever handled coal in any capacity you have doubtless noticed how the coal dust clings to these hairs. Not all the foreign particles, however, are filtered out by these hairs. Some of the smaller ones are able to penetrate this filter and invade the nose. This brings us to the second line of defense, the mucus. The lining of the nose is normally coated by this colorless jelly-like substance which is constantly being secreted by the numerous glands that are contained in the membrane. The tiny particles that do succeed in getting by the first line of defense come in contact with this film of sticky mucus and tend to adhere to it. They become enmeshed in the secretion and are thus prevented from causing injury to the delicate membrane lying beneath. The mucus is an extremely important factor in defending the nose against foreign invasion. Any condition which would lessen the production of this protective film can cause considerable harm. Nature sees to it that there is always a sufficient amount produced to keep the nose functioning properly under normal conditions. It fails to

function efficiently when conditions are not normal; that is, when the air we breathe becomes so dry that the glands are unable to cope with the situation.

This dryness usually comes about as a result of the overheating of our homes and offices. The moisture that is present in the air becomes absorbed, so that the amount of mucus is insufficient for proper moistening of the air passing through the nose. The result is a dryness of the membrane, which lessens its efficiency; and thus one of the important safeguards against infection becomes impaired. This is one of the reasons why colds are more prevalent among office workers than among those who work outdoors.

To overcome this condition it is essential that some precaution be taken to replace the lost moisture. One method is by keeping pans of water on the radiators. Most radiator covers are equipped with such water containers. Another and better way is to see that the air in the room is changed at frequent intervals. When the use of air conditioning becomes more general this problem will be taken care of.

Why are we more susceptible to colds today with the improved conditions of sanitation and heating than were previous generations which often put up storm windows or nailed their windows shut in the fall and kept them closed until spring? People in the past lived quieter and more orderly lives. Their minds were free from the worries to which we are heir. Most of their time was spent out in the open. They retired at dusk and were up at dawn. Their food was plain and less varied but richer in the essential vitamins. Their resistance was therefore much greater. Consider the routine of the average person today. He goes to work in an automobile or a crowded street car. He enters the office, where he spends at least seven of his eight working hours, and then goes home in the same manner in which he arrived. He spends the evening indoors listening to the radio or playing cards. He may go to the movies where he comes in contact with people suffering from colds or to a night club where the air is thick with smoke and rank from the odors of the sweating mass. He spends so much time indoors that a breath of fresh air acts as an intoxicant. Contrast this hectic existence to the quiet, orderly, unhurried and unharried lives of past decades in which the church social was the annual "Big Event."

The third line of defense is composed of the cilia. These are millions of tiny invisible hairs that project from the membrane and penetrate the mucus which covers it. These fine cilia are in constant motion, a continuous, rhythmic movement. A magnified picture of these hairs in motion would resemble a field of wheat as the wind blows through it. They police the nose and serve as traffic directors to keep all bacteria and foreign matter constantly on the move. This movement is always in the same direction, toward the back of the nose. It is here, at the extreme end of the nose where it opens into the pharynx, that all this alien material is carried and dumped into the throat, where it is either expectorated or swallowed. These policemen of the nose do not permit anything to remain long enough to cause harm. The mucus ensnares the bacteria and detritus, and the cilia move them on and out, truly a most ingenious and efficient housecleaning process.

There is still one more safeguard. Should the invading enemy be so powerful as to threaten to paralyze or to lessen the efficiency of the defense mechanism already described, this alert watchdog of the nose is aroused to action. The nose may be invaded by irritating fumes or chemicals which might injure the delicate cilia and bring its orderly housecleaning propensity to an end. Usually before any damage can be done, however, this hair-trigger mechanism comes into play. This nerve reflex is called sneezing. Once it is set off, there is an intake of air, followed by an "explosion," which forcibly ejects all this irritating matter from the anterior of the nose. There is also a copious flow of mucus, and all that remains is washed out of the nose. If one attempt does not suffice, this procedure is repeated several times. In this manner, nature prevents the overtaxing of the intricate and delicate nasal apparatus and rids the nose of any matter with which it is unable to cope and before there is an opportunity of the nasal membrane suffering any serious damage. Nature has adequately prepared the nose to withstand conditions which it may ordinarily encounter.

Why then do we have colds? With this elaborate system of defense the nose should always function well enough to prevent them. It should be borne in mind however that while the nose has its own functions and its own defenses it is not a distinct entity. It is a part of the body—a small part but an extremely important one. As the body fares, so does this organ fare. When the individual is in good health the nose functions properly; but when the general health is impaired and the resistance lowered by overwork, lack of sleep, exposure or emotional disturbances, colds are sure to follow.

WHICH WOULD YOU RATHER HAVE—A COLD OR TWO NEW HATS?

Sounds silly, doesn't it? But it isn't! Colds are a luxury. They cost you about $15 apiece. Can you afford them? To learn how to do without them, listen in on Wednesday, November 23, to the program on "Weather and Wearing Apparel," which will be broadcast by the American Medical Association and the National Broadcasting Company. (Further details on page 1030.)

HELP for the HARD of HEARING

By Mrs. Calvin Coolidge

AMERICA recently learned with astonishment that there are some 3 million school children and 14 million adults in this country handicapped by poor hearing. The figures are based on work done by the American Society for the Hard of Hearing, with headquarters at Washington, D. C.

This society and its 170 affiliated groups are consecrated to the service of all who are handicapped through deafness. Do you realize that every one is potentially hard of hearing—that there is usually a progressive loss of hearing beginning in middle life, often earlier? From the age of 30 onward, hearing declines with varying speed, according to individual conditions.

Slight deafness is not at first noticed, particularly in large, bustling cities where as much as one third of the hearing may be lost with little or no inconvenience, largely because the normally hearing person speaks loudly in order to overcome the masking effect of the surrounding noise. In little children, even marked deafness may not be noticed because parents and physicians fail to realize or accept the condition.

If a child is inattentive or does not respond to the ordinary voice, we usually raise our voices to attract his attention. Inattention is often one of the first symptoms of deafness, for every one is apt to lose interest and stop listening when he finds out that he cannot hear.

Both child and adult can be trained to use their eyes and interpret speech from the lips and facial expressions of the speaker. This training in the art of lip reading is imperative if the hearing loss is more than 20 degrees below normal.

Deafness should be detected early, and the only satisfactory way to do this is by examination on a child's admission to school. The earlier the detection, the earlier and better will be the results from medical and educational management and treatment, and the less handicap will there be in later life. No matter how severe, deafness need not interfere with a full education, vocational and social guidance and training, and should never be permitted so to interfere.

Great progress is being made both in the prevention of deafness and in its management and treatment. Recently, bills to aid children handicapped through deafness have been prepared in Washington and made law in some states.

Unfortunately, it is almost wholly the hard of hearing people who seem able to visualize the necessity for united educational and financial support to aid the hard of hearing and who fully appreciate the importance of preventive measures. However, largely because of neglect and faulty education, many hard of hearing persons are unable to earn enough to enable them to contribute much to the work of the American Society for the Hard of Hearing. That is why a special appeal is being made for outside help. Membership in the society is open to every one—those whose hearing is normal as well as those with impaired hearing. A yearly membership with dues of $2 is now available.

During the observance of National Hearing Week, October 23 to 29, the society's goal is at least 10,000 new members.

I voice the plea of every one who has seen or suffered the devastating effects of lowered hearing when I ask a fair deal for the hard of hearing child and a square deal for the hard of hearing adult. Take a hand, and help to unstack the cards for all who are now or will some day be handicapped by imperfect hearing.

The Apple of Sleep

It is now no longer necessary to "grin and bear it" or to rely on the imperfect and uncertain effects of anesthesia. Modern methods are quick, safe and reliable, as shown

By ROBERT A. KILDUFFE

NOVEMBER the fifth, 1219 A. D. The place, the walled city of Damietta on the eastern shore of the Nile.

It is now seven months since John of Brienne and the soldiers of the fifth crusade began their siege. Battle by day, alarm by night, disease, wounds, hunger have thinned the defiant Moslem garrison. Two months ago a forest of new banners and pennons sprang up among the tents and in the trenches of the invaders, heralding the arrival of the steel-panoplied hosts of his Gracious Eminence, the Cardinal-Legate Pelagius. Yesterday in the failing light of the sinking sun the Tower of the Chain, guarding the channel, fell to the Flemings. Today the Christian hordes, Templars, Hospitalers, knights and esquires, men-at-arms and villeins, camp drab and motley followers, poured over the walls and battered in the gates with hoarse, sobbing shouts of triumph.

It is now the third hour after sunset and five since the city fell. The twisting streets and narrow lanes are scenes of horror; for loot, license, riot and worse are loose and rampant, here in shade, there in the garish glow of flaming houses. Only the courtyard of the great mosque is strangely silent.

On the courtyard walls, shadows grow and swell and shrink again as a great fire glints redly on helmet, shield and hauberk cast aside in agony. For here be those whom the juggernaut of war has crushed, sinner and saint, dupe and zealot, sharing a common bed of pain.

The courtyard is not really still. It only seems so by contrast with the tumult of the dying city. Hurrying feet, the gasping sigh of the dying, bubbling breath, the groans, shrieks and curses of those beside whom kneel the crude barber-surgeons with red-hot irons and pots of boiling oil, all rise and fall to make the night hideous.

Here lies one whose face, damp with sweat and gray with pain, still shows the stamp of rank; a knight, his eyes fixed on the kneeling leech who speaks to a bedraggled wanton of the camp: "A malison on thee, wench! The water is tepid—bring more quickly! And see to it that it be boiling!"

From his pouch he takes a sponge. He dips it in the water. And as the hot vapor rises against the chill night air he presses it quickly to the nostrils of the gasping Frank. "There, messire! Now breathe ye deeply—'tis the apple of sleep!"

OCTOBER the sixteenth, 1846. The place, the operating amphitheater of the Massachusetts General Hospital.

The amphitheater is crowded. All eyes are fixed on a little group surrounding the operating table where lies a man waiting to pass through the red gates of pain. A tumor is to be removed.

Dr. Warren, the surgeon, with his sleeves rolled up and the old frock coat (reserved for operations) tightly buttoned, sweeps his gaze over the faces looking down from the benches. Some are merely curious, many plainly incredulous; not a few show the faint, damning smile of disbelief. They are all gazing at the man who stands at the head of the operating table with some queer glass object in his hand.

Among all those turned toward him he sees no friendly, sympathizing face; for he, a medical student, William T. G. Morton, has come with a preposterous claim to have banished pain!

Dr. Warren speaks, "Well, sir! Your patient is ready!" and glances quickly at those whose relentless grasp must be ready to restrain the patient when the butcher's work begins.

Morton bends over the patient. Silence, quiet, while the air is thick with doubt, antagonism.

"Dr. Warren, *your* patient is ready!"

In silence deeper than the tomb, the incision is made. Blood trickles, the tumor appears, is removed. The patient lies calm and still, never moving a muscle. Dr. Warren turns to the audience and says, slowly and emphatically, "Gentlemen, *this* is no humbug!"

His assistant, Dr. Bigelow, speaks to Morton: "I have seen something today that will go around the world."

THE STORY of the conquest of pain begins in the earliest records of mankind and reveals many strange methods, queer drugs and weird concoctions. The mandragora of the Greek, Discorides, in the first century was perhaps the nepenthes which Homer's Helen of Troy added

Harold M. Lambert

THE ANESTHETIC IS OFTEN A COMBINATION OF MANY GASES, THE PROPORTIONS BEING EXACTLY REGULATED AND EASILY CONTROLLED BY INGENIOUS MACHINES.

to wine to "lull all pain and anger and bring forgetfulness of sorrow." The preparation, probably of hashish, used by the Chinese Hao-tho in the third century; the spongia somnifera, the "apple of sleep" of Hugh of Lucca in the thirteenth century, all these and more marked the halting steps of man along the path toward the conquest of pain.

The apple of sleep was a strange mixture:

> Take of poppy heads, of nenuphar, of the juice of unripe mulberries, of the leaves of mandragora and let the whole boil with a new sponge until consumed. And as oft as there shall be need of it, soak ye the sponge in water and let it be applied to the nose.

Probably the only active ingredients in this concoction were the opium from the poppy heads and the mandragora, a drug appearing in medical literature from the first century onward, though now only of historic interest.

Mandragora, the mandrake of old, which is not the mandrake of today, was surrounded with curious superstitions born of the fact that its forked root had a vague resemblance to the limbs of the human body, which gave rise to the belief that the mandrake *had* human limbs. From this came the tale that whoever uprooted it would die with its shrieks in his ears. Hence, to secure it, the ears having been well stopped with cotton, it was to be "earnestly delved for with an ivory staff" until the "hands and feet" were disclosed; then a hungry dog was tethered to the uncovered root, and a piece of meat was held beyond his reach. Straining to reach the meat, the dog jerked out the root and forthwith died. However, some doubt about this horrific

power of the plant was shown now and then, for one Gerard about 1600 records that

> I myfelfe and my feruants alfo have digged uppe, planted and replanted verie many.

And in an old herbal is found the following:

> Thys herbe diverse ways teken is verie jepardus for man and may kill hym of he eat or drynke it out of mesure . . . bye and bye slepe ensueth and a grete lousing of strenngthe and forgetfulness. . . . The rind thereof medled with wine gene to them that shall be cut in there bodie for they should slepe and not feel the sore knitting.

It seems somewhat strange that despite knowledge of the sleep-producing properties of opium and hashish and mandragora as well as similar drugs the development of anesthesia was retarded, and surgery and agony remained synonymous for so many centuries. But then, no one knew the proper strength in which to use such concoctions, the proper method of preparing them, or even how they might best and most efficaciously be administered. The idea remained alive, though methods came and fell into disrepute and were forgotten.

In 1589, for example, a Neapolitan surgeon, Giambattista Porta, mixed an essence of solanum, poppy, hydrocyamus and belladonna in a leaden vessel and "the lid being opened, the patient would draw in by breathing the most subtle vapor so that thereby he would be buried in a most profound sleep, nor be aware of what was done to him." Always through the ages, men were trying this and noting that effect, seeking surcease from pain. And always through the murk of ignorance, superstition and uncertainty there were faint gleams of time to come, such as the observation of Napoleon's chief surgeon, Larrey, that after the battle of Eylau, amputations done on the field in a temperature of 19 below zero were without pain. The deliberate use of cold as a local anesthetic was not to come, however, for many years. For the history of medicine, like the history of mankind in general, is a tale of human fallibility and error.

We, who accept anesthesia of one kind or another largely as a matter of course, are not apt to realize that, though methods for the relief of pain were eagerly sought for untold ages, when found they had to overcome not only disbelief but aggressive antagonism.

It seems incredible now that Eufame Macalyne, a lady of rank, was burned alive on Castle Hill, in Edinburgh, in 1591 because, having sought relief from pain during childbirth, she had attempted to "avoid in part the primeval curse upon women." And, so slow is the advance of civilization, when Sir James Y. Simpson introduced chloroform into Scotland in 1847 as a means of relieving the pains of labor, he was reviled and railed at for his impious frustration of the "curse of the Almighty upon women."

He silenced his critics, however, by perhaps the most absurd argument ever used to win a great cause: "My opponents forget," he said, "the twenty-first verse of the second chapter of Genesis; it is the record of the first surgical operation ever performed, and the text proves that the Maker of the universe, before he took the rib from Adam's side for the creation of Eve, caused a deep sleep to fall upon Adam."

Painless surgery is now a matter of course, but it is not always remembered that the advent of anesthesia played no small part in the development of modern surgery. It is scarcely fifty years since, at a medical congress, it was gravely said that surgery had reached its ultimate limit, no further advance was possible. Nor is it much longer since a similar gathering was emphatically told that the man who would attempt an operation on the human heart fell little short of criminality in the deed. Yet today, operations on the heart are not uncommon, and surgical experimenters are even now engaged in attempts to devise methods for the repair of damaged heart valves.

These things are possible in part because the surgeon no longer operates on a struggling patient rending the air with unnerving shrieks; he no longer has to aim at speed, speed as the ultimate in surgical skill.

The surgeons of old were speedy because they had to be to save the patient all the agony possible and to save their own taut nerves. And it is remarkable how quick they became. "'You consider Mr. Slasher a good operator?' said Mr. Pickwick. 'Best ever,' replied Hopkins. 'Took a boy's leg out of the socket last week—boy ate five apples and a ginger cake—exactly two minutes after it was all over boy said he would not lie there to be made game of and he'd tell his mother if they didn't begin.' 'Dear me!' said Mr. Pickwick, astonished."

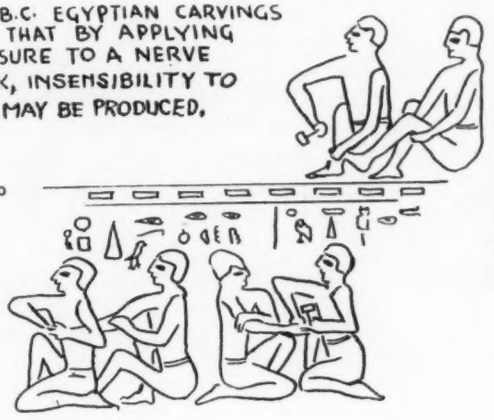
In 1846, on December 26, Liston, surgeon to the Northern London Hospital, amputated a leg at the knee in twenty-five seconds by the watch. This was not extraordinary, although the operation was historic for it was the first ever performed in all England under an anesthetic, ether, and Liston said, "The Yankee dodge beats mesmerism all hollow."

It is, of course, quite apparent that the imperative necessity for speed in the performance of operations necessarily limited surgical procedures to those which in the light of modern surgery were somewhat crude and simple. Delicate manipulations were impossible, as were operations requiring extensive manipulations. It is readily conceivable that operation on frantic patients whose struggles were restrained by brute force could not possibly be operations performed with deliberation. Even when the patient, torn with agony, had fainted, there was always uncertainty as to when he would return *(Continued on page 1032)*

The Evolution of Anesthesia

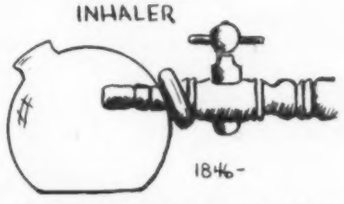
By ROBERT L. LEWIN

2500 B.C. EGYPTIAN CARVINGS SHOW THAT BY APPLYING PRESSURE TO A NERVE TRUNK, INSENSIBILITY TO PAIN MAY BE PRODUCED.



FIRST CENTURY A.D. MANDRAGORA, BELLADONNA AND OTHER ATROPINE-CONTAINING PLANTS WERE USED TO DEADEN SENSORY NERVE ENDINGS.

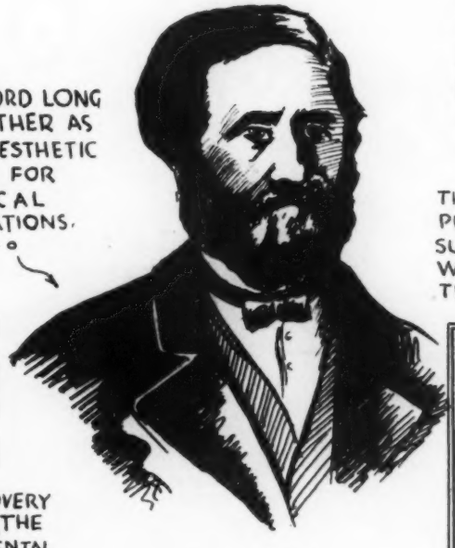
MORTON'S INHALER



1846- W. T. G. MORTON DEMONSTRATED THE USE OF ETHER AT THE FIRST PUBLIC DEMONSTRATION OF SURGICAL ANESTHESIA, AND DR. WARREN EXCLAIMED, "GENTLEMEN, THIS IS NO HUMBUG."

1540 - CORDUS DISCOVERED ETHER.

1842- CRAWFORD LONG USED ETHER AS AN ANESTHETIC AGENT FOR SURGICAL OPERATIONS.



1847- SIR JAMES SIMPSON EXPERIMENTED ON HIMSELF WITH CHLOROFORM, AND EVERY MORNING HIS NEIGHBOR VISITED HIM TO SEE IF HE HAD SURVIVED.

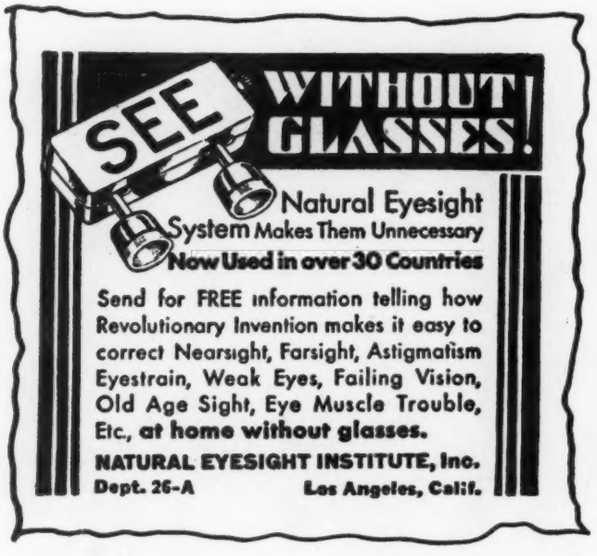
1846- THE TERM "ANESTHESIA" WAS SUGGESTED BY OLIVER WENDELL HOLMES.
1847- SIMPSON INTRODUCED CHLOROFORM.
1884- KOLLER DISCOVERED COCAINE.
1905- EINHORN AND BRAUN DISCOVERED AND INTRODUCED NOVOCAIN - OFFICIALLY KNOWN AS PROCAINE.
1923- ETHYLENE CAME INTO GENERAL USE.

1844- 70 YEARS AFTER THE DISCOVERY OF NITROUS OXIDE BY PRIESTLEY, THE GAS WAS FIRST USED IN A DENTAL OPERATION, IN WHICH A TOOTH WAS EXTRACTED FROM HORACE WELLS.

MODERN ANESTHESIA SPARES THE PATIENT MUCH OPERATIVE PAIN

The "Natural Eyesight Institute" Fraud

ARTHUR J. CRAMP *outlines the steps by which a fraudulent firm, which long victimized the public, was brought to justice*


SEE WITHOUT GLASSES!
Natural Eyesight System Makes Them Unnecessary
Now Used in over 30 Countries
Send for FREE information telling how Revolutionary Invention makes it easy to correct Nearsight, Farsight, Astigmatism Eyestrain, Weak Eyes, Failing Vision, Old Age Sight, Eye Muscle Trouble, Etc., at home without glasses.
NATURAL EYESIGHT INSTITUTE, Inc.
Dept. 26-A Los Angeles, Calif.

SUCH WERE THE LURES THAT BROUGHT SO MANY PERSONS TO TRY THE "MECHANICAL HOKUM" THAT WAS THE "NATURAL EYE NORMALIZER." THOUGH IT CLAIMED TO ROTATE AND EXERCISE THE EYEBALLS IT ACTUALLY COULD DO NEITHER ONE.

"SEE WITHOUT GLASSES!" "Divorce Eye-Crutches!" "Give Your Eyes a New Deal!" Under such slogans a piece of mail order quackery has been ballyhooed for ten years past. Finally that overworked arm of the Post Office Department that investigates the fraudulent use of the mails got around to it, and the "Natural Eyesight Institute, Inc.," of Los Angeles has been debarred from the United States mails.

On Feb. 19, 1938, the Post Office Department reported that the mails had been closed by the issuance of a fraud order to the Natural Eyesight Institute, Inc., Urbane L. Barrett, president, Thomas J. Barrett, secretary, and their officers and agents as such. Actually, the business was declared a fraud and the fraud order issued nearly a year earlier, May 19, 1937; but the quacks applied for a temporary injunction. It was not issued, but the mail was ordered impounded until the case was disposed of. On Feb. 17, 1938, the suit was dismissed, and the fraud order was put into effect.

The Natural Eyesight Institute sold on the mail order plan a "system" consisting of alleged eye exercises—with a mechanical gadget playing a large part in the swindle—which would, according to the advertisements, "get rid of the spectacle handicap" and enable the purchasers to "divorce eye crutches." Prospective victims were assured that by the use of the system, spectacles could be abandoned by those who suffered from nearsightedness, farsightedness,

astigmatism, eyestrain, squinting, weak eyes, cross eyes and failing vision due to age as well as to other defects of visual acuity.

The scheme seems to have been based on a business that was started in 1906 by Wesley M. Barrett, an osteopath—and brother to Urbane Barrett—who conducted the Barrett Institute in Los Angeles. The Wesley M. Barrett business seems to have been mainly local and personal although he did for a while do some mail order work even after he had sold out the mail order business to his brother Urbane. Material in the files of the American Medical Association shows that as late as 1929 Wesley was advertising his "Home Service Department." Urbane bought out Wesley's interest in the mail order end of the business in 1927 and changed the name from "Barrett Institute" to "Natural Eyesight Institute." Urbane was a lawyer who had specialized in the writing of briefs, and it was he who is reported to have written brother Wesley's "System" and later to have rewritten the system when he created the Natural Eyesight Institute and went into mail order quackery in a really big way. Wesley is said to have had no connection with the last named organization since its incorporation in 1927.

Urbane's story at the post office hearing was to the effect that he had been nearsighted since birth and had worn glasses for years. Then he went to California, where brother Wesley gave him treatments consisting of "eye exercises, osteopathic treatments, electrotherapy and dieting." The results, he claimed, were so satisfactory that he decided to put out the mail order eye cure. It might be supposed that Urbane after this experience and especially after writing the system that he claimed would make it unnecessary to wear glasses would of course practice what he, for a consideration, preached. But it was brought out at the hearing that Urbane "still wore glasses!"

To be a commercial success a quack must have in addition to a system or a course something more material than mere instructions and suggestions. It may be a pill, or it may be a piece of mechanical hokum. In the case of the Natural Eyesight Institute it was the latter: the "Natural Eye Normalizer," earlier known as the "Barrett Eye Normalizer." This device has been variously claimed to be "Dr. Wesley M. Barrett's own invention" and also to be the invention of "Dr. Thomas J. Barrett." You pay your money and take your choice. It has also been advertised as a "new patented instrument." A search through the patent records of twenty or more years failed to disclose that any patent had been issued for the device to either Wesley M. or Thomas J. Barrett.

The "Normalizer" was a metallic affair having two eye cups lined with rubber. By manipulating two small levers these cups could be made to give a one-fourth rotation in either direction. In use the "Normalizer" was placed over the closed eyes and the levers were manipulated, the claim being that the eyeballs could be made to rotate in accordance with the movements of the cups. Pictures were published showing the muscles attached to the eyeballs and purporting to show how the "Normalizer" would "rotate the eyes *inward*" and "rotate the eyes *outward*." Claims were also made that the "Normalizer":

> Takes hold of the eyes, gently rotating and stretching the muscles in every direction.
>
> By operating the lever . . . all the muscles of the eyes are gently stretched and relaxed. . . .
>
> It massages and manipulates the eyeball in a most delicate and delightful manner.

Actual tests made with this mischievous piece of hokum proved conclusively that the device was incapable of moving the eyeball in the slightest degree. All it did was to give a slight twist to the eyelids! As all the muscles attached to the eye are in the rear of that organ they obviously cannot be moved by any external force except by actually moving the eyeball—which the "Normalizer" cannot do.

Lawyer Urbane Barrett, who wrote the system, claimed to base much of his stuff on the teachings and methods of another eye quack, the late W. H. Bates, who urged the public to "Throw Away Your Glasses" and buy his book! Yet a comparison of Bates's theories with Barrett's system showed that Bates condemned the use of massage of the eyes in the treatment of errors of refraction. Barrett seems to have relied on Bates's theories when such theories happened to suit his purpose; but he did not hesitate to appeal to generally accepted theories where such theories subserved the interests of the Barrett system.

At the hearing two reputable eye specialists appeared for the government; also there appeared Chief Post Office Inspector Kilroy P. Aldrich and Post Office Inspector Dana F. Angier. For the Natural Eyesight Institute, evidence was given by lawyer Urbane L. Barrett, president of the concern and writer of the system; by three osteopaths, H.McD. G. Bellew, Paul James Dodge and Riley D. Moore, and by three lay witnesses, one of whom was a chiropractor. On some points the three osteopaths supported the statements made by the ophthalmologists and discredited the Barrett system. But their knowledge of the eye and its defects was evidently inadequate for, as the government report stated, "A certain disingenuousness is apparent in the testimony of all three of respondents' osteopathic witnesses which greatly lessens their credibility." Osteopath Bellew admitted on the stand that he did not practice as an oculist, and he also admitted that he himself suffered from myopic astigmatism which is more pronounced now than it was twenty years ago, despite his knowledge of, and belief in, the Natural Eyesight Institute system!

Bellew and Moore both insisted that one of the most important things to do with a patient with eye defects was to give osteopathic treatment—although there was nothing in the Barrett system that called for vertebral manipulation!

Osteopath Dodge excused his ignorance of certain medical facts on the ground that he was an eye, ear, nose and throat specialist; while Osteopath Moore explained his lack of knowledge on similar matters on the ground that he was *not* a specialist—although he claimed to hold the degree of Doctor of Ophthalmology! The philosophy of Osteopath Dodge seems to have been expressed in his statement, "I am serving the public; and what the public wants—I have to give them!" The government report states that Dodge created the impression on the witness stand that he was endeavoring to serve the Barrett concern, for which he was testifying, according to the same principle! On cross examination, Dodge admitted, in spite of his previously professed disbelief in glasses, that "I not only think they [glasses] are beneficial, but in some cases necessary."

Of Barrett's lay witnesses, one man of 69 testified that he did not need glasses until he was 50 years old, when he wore "thin" glasses for about five years but discarded them after taking a course of eye exercises from an osteopath. He bought and read Bates's book and also an older edition of Barrett's system but never used the "Normalizer," nor did he follow the Barrett system. His testimony in no way supported the claims made by Barrett. He was evidently one of those persons whose slight nearsightedness, or myopia, developing late in life was neutralized by the presbyopia, the so-called second sight, of old age.

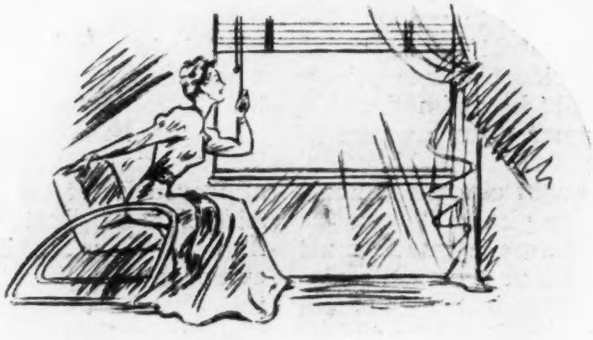
The second lay witness also paid little or no attention to the Barrett system. His testimony showed that he "neglected practically all the regimen of the system." Yet he wrote a testimonial for it! As the government report states: "This witness is approaching the age when presbyopia [old-age sight] tends to neutralize nearsight." Moreover he admitted on cross examination that his "vision now is not as good as it was with the aid of spectacles!"

The third lay witness, a chiropractor, claimed to have used the system beneficially so that he no longer used glasses—except on special occasions. Yet his testimony showed that he did *not* use the system, as such, for he ignored much of the instructions, did not use the "Normalizer" and misunderstood the purposes of some of the "charts."

The so-called "Refund Guarantee" that Barrett used in his advertising was also the subject of government attack. Barrett was a lawyer and seems to have expected a strict legalistic construction of his guarantee. There was put in evidence a complaint from a man who had purchased the system for his brother. The brother died before the system was received. When a refund was requested, it was refused, apparently on the ground that as the *purchaser* was still alive and had not, himself, tried the system for the prescribed period, the provisions of the contract of the "Refund Guarantee" had not been complied with!

This cruel fraud, which has mulcted the public for many years, is now debarred from the mails. Judge Karl A. Crowley, solicitor for the Post Office Department, in his voluminous memorandum to the Postmaster General, recommending the issuance of a fraud order, sums up the case against the swindle by showing that the system does not and cannot correct the various errors of refraction claimed and will not make it possible for persons suffering from such defects in visual acuity to "See Without Glasses." Judge Crowley closes his memorandum with the statement:

> I further find that the representations made by the respondents concerning the so-called Natural Eye Normalizer are also false and fraudulent.
>
> Moreover, the promoter himself is still obliged to wear glasses and has not been able to do for himself what he advertises to do for others in the matter of discarding same.



Sonnet After Illness

This is the selfsame world that months ago
Knew all my striving; yet the sun today
Lies strangely warm upon the earth as though
This morning were the first. These winds convey
Things that the heart once heard, yet came to be
Somehow effaced, as in the brain's deep cells
A name once known is lost to memory
Until some song or incident retells
A vanished hour. How good it is to find
The changeless things again—to sense in soil
The earth at its olden dream—to know the mind
That had grown dull with long, distracting toil,
Refound itself, as the summer months slipped by,
In a silent room and a window-width of sky.

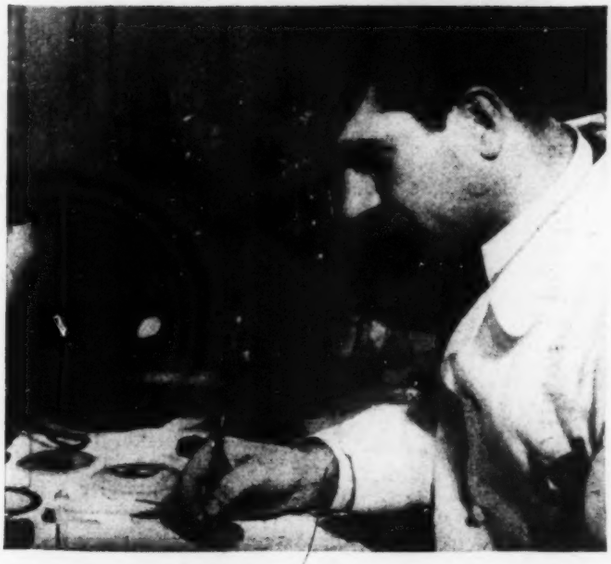
By ANDERSON M. SCRUGGS

Appendectomy—1938

A Contribution by "THE MARCH OF TIME"

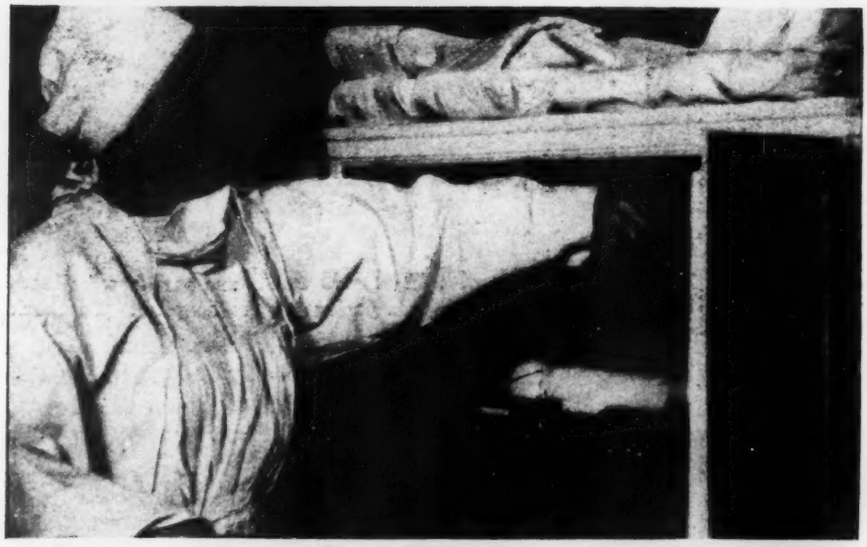
KEEN IN THE DOCTOR'S MEMORY is every detail of his first big case. A call, possibly in the night; a searching examination; stern realization of responsibility—responsibility for life—which he, like every man of medicine, must accept. This is emergency! Now the long years of study and training, of student days and internship are justified. Calmly, efficiently, the doctor takes charge.

KNOWING THAT DEATH AND DELAY are partners, he loses no time in getting his patient to the hospital. To check his diagnosis he orders laboratory tests.



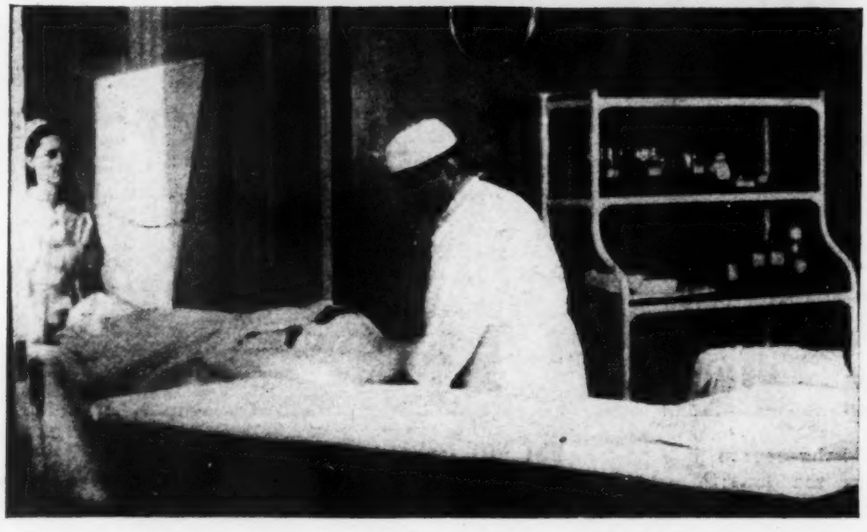
ANALYSIS OF THE BLOOD reveals the degree of infection that is present in the toxic system.

BUT NOT UNTIL the hospital's laboratory completes its "white corpuscle count" is he ready to make his decision.



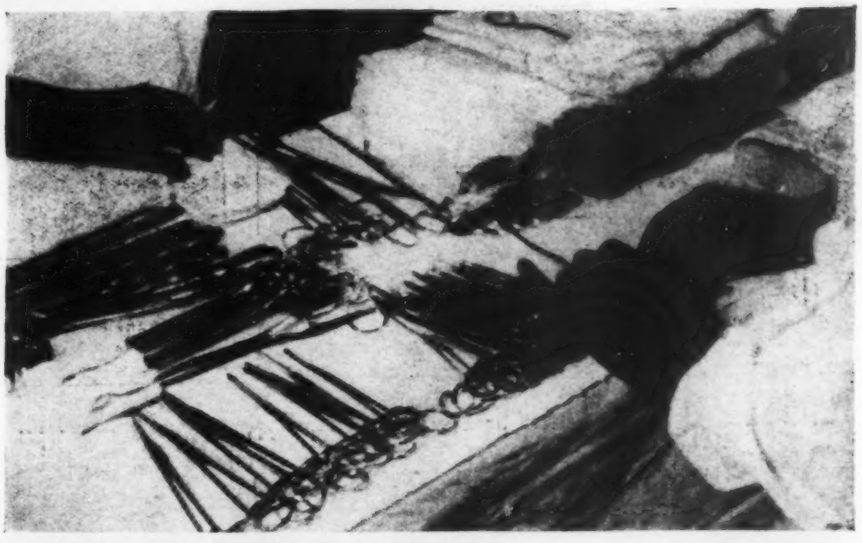
HE FINDS that the pain has become localized, that around the appendix the abdomen grows rigid under pressure. This, he knows, indicates an inflamed appendix, calling for immediate surgery.

HIS DECISION MADE, into action go those who must prepare for the doctor and his patient. Surgical nurses select the sixty-odd instruments the doctor must have at hand.



FROM THE MOMENT that operative preparation is ordered, there begins a complex ritual evolved from the accumulated experience of all the great men of medicine, designed to protect the patient, to remove pain and chance from the operating room.

PREPARED for the best — the best that modern scientific knowledge and surgical skill can afford—the patient waits, the center of a tense drama.

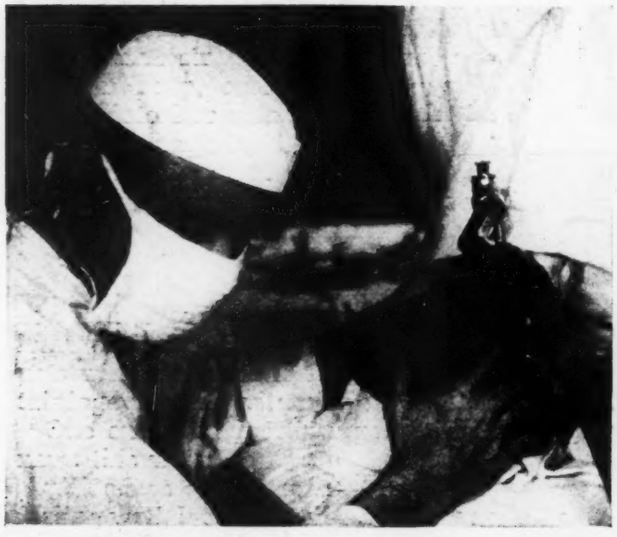


STERILIZED in live steam, the scalpels, clamps and retractors are laid out in precise formation, a part of the pattern of modern surgery.

FROM SUPERHEATED OVENS come the surgical robes and dressings. Strict adherence to the laws of asepsis is a life-saving measure.

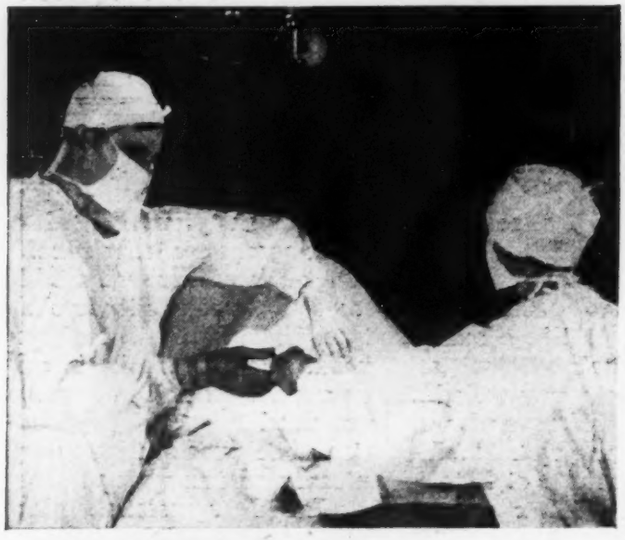
IN SURGERY, cleanliness is "akin to godliness."

"SCRUBBING UP" is part of the inviolable ritual.



WITH ANESTHESIA the patient breathes in oblivion.

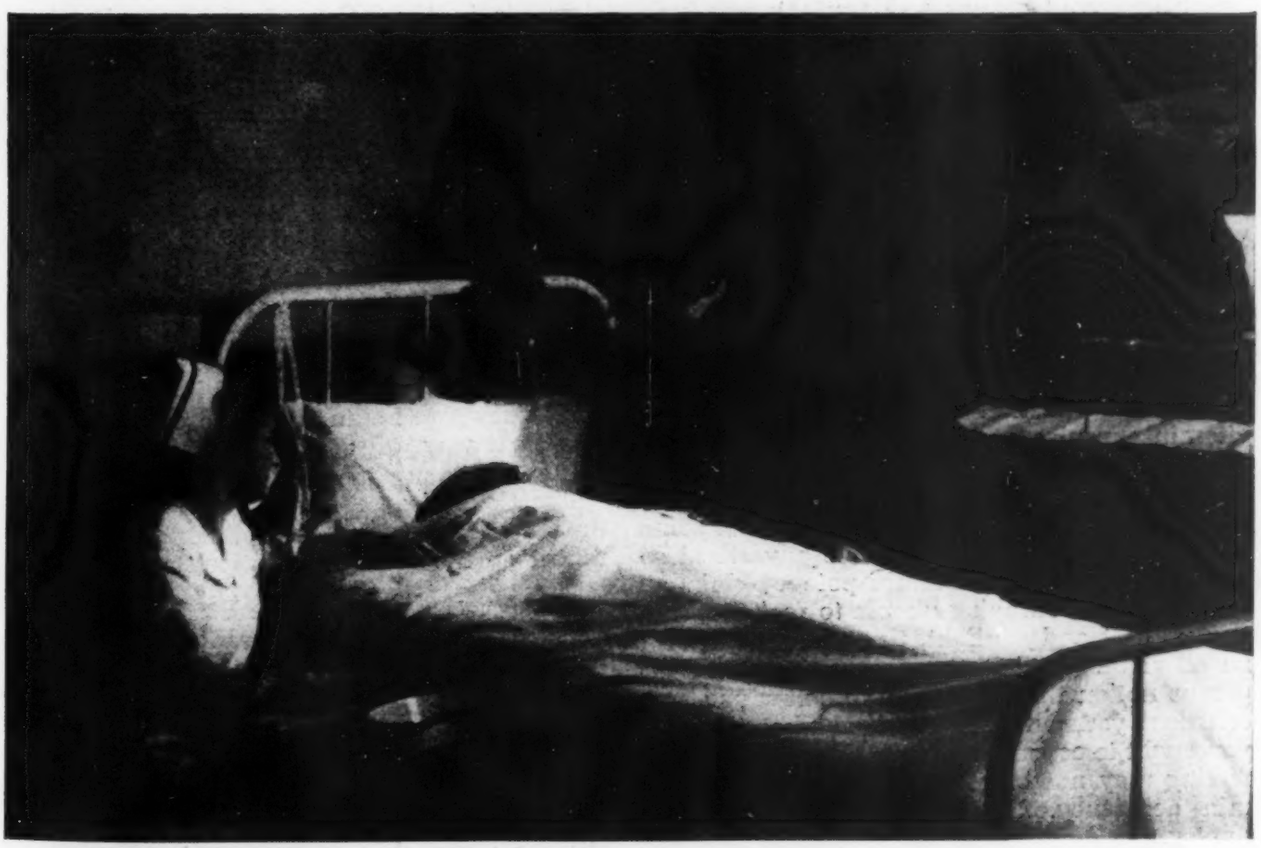
ASEPTIC PRECAUTIONS exclude infection.



ALERT, COOPERATIVE, CAPABLE, the nurse is the surgeon's third hand, anticipating every need.

FROM THE BACTERIAL DISCOVERIES of Louis Pasteur and the development of antisepsis by Joseph Lister, the surgeon knows how to protect his patient and himself from infection. No precaution is too extreme, no safeguard too trivial. Bracketed with this boon as one of the greatest blessings to surgery is its anesthesia, discovered less than a century ago by William Morton of Massachusetts and Crawford Long of Georgia, and once ridiculed as a worthless experiment.

ON HIM now rests all responsibility—success must depend solely on the skill of his hand and, in any emergency, on the speed and wisdom of his decision.



WITHIN LITTLE MORE than half an hour the doctor has justified his ten long years of training. Before dawn, a boy who at midnight was in danger of death is on the road to recovery.

"The Vitamin Follies"

By LOIS MATTOX MILLER

IN THE OPINION of the medical profession, the American people have gone "vitamin crazy." Hypnotized by the latest health fad, they gulp quantities of vitamin pills and capsules to prevent colds, to ward off a long list of dread diseases, to give themselves pep, beauty and strength. The family washes with vitamin soap, and milady may rub vitamin cream into her skin to "nourish the skin cells and bring back the bloom of youth." Children chew vitamin gum.

In drug store sales, vitamin preparations have leaped from tenth to third place and, in the words of one trade paper, "are already eating big chunks from the sales of rival laxative, cough and cold groups." Manufacturers have learned that their drug, cosmetic or food products will sell faster if they are labeled as "containing valuable vitamins A, B, C, D, G, etc."

One current advertiser proclaims the joyous news this way:

"Wonders can happen—to you. Wonders of feeling well, looking well—of being awfully glad you're alive. Vitamins can be the secret. Which vitamins? All those vitamins you may need. . . . Combat the strain of everyday living—be a very charming person to know."

And millions of Americans who want to be charming, who want to feel well, look well and be awfully glad that they're alive, down their vitamin capsules every day. Even the cigaret girls in New York night clubs now sell vitamin pills—and plenty of them.

It's all pretty silly, at best, for there is some doubt whether many of the pills advertised so blatantly contain the vitamin potency claimed. Worse, it's encouraging people to feel they can neglect diet and sunlight, then take a pill and be all right. And it encourages, too, the dangerous notion that when you're below par, you can dose yourself back to vigor when perhaps you ought to consult a doctor. The "below par" feeling may not be remotely related to a vitamin deficiency. Finally, it wastes a lot of money.

The doctors have no quarrel with vitamins. Every man and woman alive needs a normal supply every day in order to be well. A lack of any of the vitamins may result in what the doctors call "deficiency diseases." But the reason why these deficiency diseases are not common in America is that most adults get all the vitamins they need and in the form they need them most by simply eating three adequate meals a day—which is just the way Grandpop got his vitamins long before they were discovered. With young children it may be a good precaution to supplement the diet with proper vitamins.

The medical profession's quarrel is with the advertising that has created the impression that vitamins are drug preparations rather than elements in the balanced diet. As Dr. Nina Simmonds of the University of California School of Medicine reminded the American Medical Association convention last June, this type of advertising is "leading people to depend too much on drug store capsules and not enough on the ordinary food from the grocery and butcher shop."

The American Medical Association calls this latest health fad "shotgun vitamin therapy" and has expressed the opinion that "even if no harm results, it should not be forgotten that the giving of combined vitamin concentrates [that is, unnecessarily complex vitamin preparations] often proves to be an economic waste." Just a dignified way of saying, "Don't be such a sucker."

The Council on Pharmacy and Chemistry of the American Medical Association in its official report on the vitamin situation, says:

> This popularization of the comparatively recently acquired knowledge of the various vitamins has resulted in many misconceptions, largely to the benefit of unscrupulous but sometimes also well-intentioned manufacturers of products offered to the public. Among these misconceptions are the ideas that everybody needs to take supplements of all the vitamins all the time and that it is both therapeutically and chemically advisable to combine all or some of the vitamins, perhaps with some mineral or minerals, in one preparation. It has apparently been forgotten that no necessity has been found for administering prepa-

Courtesy of "The New Yorker"

"CIGARS, CIGARETS AND VITAMIN CAPSULES."

rations containing complex combinations for effective maintenance of health when a balanced diet is taken. Clinically recognizable multiple vitamin deficiency diseases are certainly rare in this country.

The tendency of many manufacturers has been to offer as many vitamins as possible in a single pill, the theory being that the more vitamins you can offer, the faster your preparation will sell. Some particular brands even try to outbid their rivals for public favor by adding "valuable minerals" to the combination. The Council on Pharmacy and Chemistry of the American Medical Association has repeatedly refused to approve such combinations and has pointed out that some vitamins may lose their potency when combined in complex mixtures.

What, after all, are these mysterious vitamins? They are infinitesimal and complex chemical substances that are present in certain natural foodstuffs, and they have been found to be vital to health and life. If all the vitamins present in the foodstuffs of one day's adequate and balanced diet were isolated they would bulk about one tenth of a gram, or approximately .003 ounce. Yet the lack of any of the vitamins contained in this microscopic pile can eventually cause ill health and even death. Rickets, anemia, pellagra, beriberi and other "deficiency diseases" are results of long continued and extreme deficiencies of one or another of the vitamins.

The whole subject is highly complex and rapidly grows more so as research extends the frontiers of knowledge. But all the ordinary person needs to remember is this: Unless yours is distinctly a freak case, you need be concerned only to see that you get five vitamins. They are A, B_1, C, D and G (B_2). Never mind the rest of them, which run through the alphabet as far as Y. *(Continued on page 1045)*

EXERCISE

In part VIII **DUDLEY B. REED**
tells of the horse—hero of many a tale

"A HORSE! A HORSE! My kingdom for a horse!" Thus spake King Richard III on Bosworth field, as reported by the Bard of Avon. In this emphatic call for aid or expression of a wish, King Richard not only made a bid for a horse which was beyond the purse of a Whitney or a Bradley but showed himself out of accord with that other classic which states, "A horse is a vain thing for safety; neither doth he save any by his great strength." Either rightly or wrongly he seemed to feel that the possession of a horse in the place of his own, recently slain, would mean to him the difference between this and that; in fact, that it was of the utmost importance, a feeling by no means unparalleled in history.

Robert Browning now speaking:

And there was my Roland to bear the whole weight
Of the news which alone could save Aix from her fate,
With his nostrils like pits full of blood to the brim,
And with circles of red for his eye-socket's rim.

Then I cast loose my buff-coat, each holster let fall,
Shook off both my jack-boots, let go belt and all,
Stood up in the stirrups, leaned, patted his ear,
Called my Roland his pet name, my horse without peer—
Clapped my hands, laughed and sang, any noise, bad or good,
Till at length into Aix Roland galloped and stood.

And all I remember is, friends flocking round,
As I sat with his head 'twixt my knees on the ground;
And no voice but was praising this Roland of mine,
As I poured down his throat our last measure of wine
Which (the burgesses voted by common consent)
Was no more than his due who brought good news from Ghent.

The other two horses had fallen by the way, but Roland was a horse for an emergency, and we are led to believe that Aix was saved.

And next across the broad, salt sea, listen to one of the clan of Read:

Hurrah, hurrah, for Sheridan!
Hurrah, hurrah, for horse and man!
And when their statues are placed on high
Under the dome of the Union sky,
The American soldiers' temple of fame,
There, with the glorious general's name,
Be it said in letters both bold and bright,
"Here is the steed that saved the day
By carrying Sheridan into the fight
From Winchester, forty miles away."

Is that the way you remember it? Inaccuracies may have crept in since I looked at it in the old reader, for half a century has passed since last I recited it on Memorial Day—with gestures, but the gist of the thing is there. It was a matter of horse and man.

Listen, my children, and you shall hear
Of the midnight ride of Paul Revere.

When he looked for the lanterns in the steeple of the Old South Church, "one if by land and two if by sea," Paul Revere, on the opposite side of the river, was standing, not by the side of a rakish roadster but by the side of a strong and fast and faithful horse on whose back he galloped to let the suburbs of Boston know that the British were coming.

It is the present fashion to discredit as much near-history as we can. The battle of Bunker Hill was fought on Breed's Hill. Even if George Washington had a dollar he didn't throw it across the Delaware; he had no hatchet, never saw a cherry tree and told lies the same as you or I. Santa Claus and his reindeer have accompanied the stork into ignominious oblivion. But couldn't we, perhaps, keep Paul Revere in spite of ribald and unseemly parodies on the poem which celebrates his achievement? We *must* believe something.

Few men who began life as boys will have forgotten Antares and Aldebaran and the other star-named Arabs which aided Ben Hur in his vengeance on the proud and villainous Messala. In the memories of most must linger the thrill of the chariot race in which purity and truth and honor triumphed over pride and cruelty and double dealing in a most satisfactory way. Whether I am more bloodthirsty and vindictive than others, and more than I should be, I do not know; but in many modern tales and pictures I regret more or less mildly the villain's escape from the noose by leaping over the cliff. In some vague way it seems more just and satisfying to have the punishment which he so richly deserves delivered to him by human forces of righteousness.

There may also linger pleasantly in the mind the beautiful black charger reluctantly given by Prince John to the Knight of Ivanhoe on the occasion of the gentle and joyous passage at arms at Ashby. How many a boy has identified himself with the courteous and gentle but competent knight as he exhibited the spirited steed with surpassing horsemanship, it being remarked that this exhibition detracted no whit

OF ALL THE ANIMALS THAT ABOUND ON THE EARTH, NONE HAS BEEN RECOGNIZED IN LITERATURE AS HAS THE HORSE. FOR YEARS THE HEARTS OF CHILDREN HAVE MATCHED THE MAGIC, RHYTHMIC BEAT OF POUNDING HOOFS.

from the rider's modesty since he was emphasizing merely the richness of the gift.

As he recalls Dr. Jameson's ride and that "for the want of a nail the shoe was lost, for the want of a shoe the horse was lost, for the want of a horse the battle was lost," any reasonable person should be ready to admit that of all the animals which swim in the sea or run on the earth or fly in the heavens, there is none which has been recognized in literature as has the horse.

In "The Woollcott Reader," published in 1935 (Viking Press, Inc.), is reprinted Ian MacLaren's "A Doctor of the Old School" from "The Bonny Briar Bush" (Dodd, Mead & Co.), of which Alexander Woollcott says, "If, in some crisis of flood or fire, I knew I could keep, in my flight to safety, but one out of all the sacred writings in this book, there would be no moment of hesitation. I should choose A DOCTOR OF THE OLD SCHOOL—one of the most deeply moving of all passages in English letters."

It will be recalled that, for many a long, hard year, Dr. "Weelum" MacLure had stood between his folk of Drumtochty and the surrounding country, and the ravages of illness and death, aided by his medical skill, his sturdy constitution, his love of humanity, and his horse, Jess, on whose back he answered the calls of his people day or night, summer and winter, in sunshine, snow or flood but

> Death after all was the victor, for the man that had saved them had not been able to save himself.
>
> As the coffin passed the stable door a horse neighed within, and every man looked at his neighbor. It was his old mare crying to her master.
>
> Jamie slipped into the stable, and went up into the stall. "Puir lass, ye're no gaein' wi' him the day, an' ye'll never see him again; ye've hed yir last ride thegither, an' ye were true tae the end."
>
> After the funeral Drumsheugh came himself for Jess, and took her to his farm. Saunders made a bed for her with soft, dry straw, and prepared for her supper such things as horses love. Jess would take neither food nor rest, but moved uneasily in her stall, and seemed to be waiting for someone that never came. No man knows what a horse or a dog understands and feels, for God hath not given to them our speech. . . .
>
> The Kildrummie veterinary came to see her, and said that nothing could be done when it happened after this fashion with an old horse.
>
> "A've seen it aince before," he said. "Gin she were a Christian instead o' a horse, ye micht say she wes dying o' a broken hert."
>
> He recommended that she be shot to end her misery, but no man could be found in the Glen to do the deed, and Jess relieved them of the trouble. When Drumsheugh went to the stable on Monday morning, a week after Dr. MacLure fell on sleep, Jess was resting at last, but her eyes were open and her face turned toward the door.
>
> "She wes a' the wife he hed," said Jamie, as he rejoined the procession, "an' they luved ane anither weel."

If he can lay his hands on a copy, the reader may even turn to the volume which, although not read today as much as formerly, nevertheless tops the list of best sellers of all time. He may find his way to the last book of the volume, the Book of the Revelation of Saint John the Divine, and read in the sixth chapter of that mystic and difficult book:

> And I saw, and behold a white horse: and he that sat on him had a bow: and a crown was given unto him: and he went forth conquering, and to conquer.
>
> And there went out another horse that was red: and power was given to him that sat thereon to take peace from the earth, and that they should kill one another: and there was given unto him a great sword.
>
> And I beheld, and lo a black horse: and he that sat on him had a pair of balances in his hand.
>
> And I looked, and behold a pale horse: and his name that sat on him was Death, and Hell followed with him. And power was given unto them over the fourth part of the earth, to kill with the sword, and with hunger, and with death, and with the beasts of the earth.

Victory and war and justice and death seated on horses, white, red, black and ghostly pale.

The horse has been known on earth perhaps as long as man. His recorded use for purposes of war goes back to 2,000 B. C. in China, and there are evidences from bones and drawings that he was an associate and a partner of man in the Neolithic age, long before the dawn of history. As is the case with the British Empire the sun never sets on the horse for he is used on all continents and by most nations. He is a polyglot—he is ridden in all languages.

The Greeks rode their horses bareback or with cloths strapped on their backs and were probably excellent riders. The conquering Romans took their horses with them to Britain and bred them with the native mares. At the time of the crusades, when Richard Coeur de Lion and other great knights went out from England to fight the Saracens they brought back Arab horses or Barbs and bred them with the British strain. When the early settlers came to this country they brought with them horses and cattle. It is probable that the little *Mayflower*, with her passenger list which seems to have included thousands of human ancestors, would scarcely have had stable room for equine ones. But the John Winthrop expedition, with its eleven ships, did bring English horses to Massachusetts in 1630. Knowing Massachusetts and its settlers we may suppose that these were not race horses but rather such as were adapted to and intended for farm work. To the south, in Virginia, however, there was more of a sporting element, and thither thoroughbred race horses were soon brought—yes, and raced too.

As the settlers pushed west and struck up an acquaintance of sorts with the Indians they found that the red men had horses which they rode bareback with exceptional skill and loud yells. Whence did the Indians secure their mounts? Probably from the Spaniards who came into the southwestern part of this country with horses as early as 1550.

Thus the horses in this country come chiefly from British and Spanish sires; but it may not satisfy the inquiring mind to go back merely to England and Spain or to the Neolithic age for equine ancestry. And there is material at hand for such a mind. It appears that fossil remnants show the original equine and the progenitor of the horse to have been a coney-like animal which existed in the Eocene period quite a long time ago. The dictionary states that the coney was a rabbit, and the fossils indicate that these early equines were about 3 hands high (one measures a horse in hands), and this means 12 inches, not an imposing mount even for a small man. However, they increased in size as eons flew by and, in the Miocene period the Pliohippus emerged and was about 10 hands high. Prehistoric horses lived in both the Old and the New World, but *(Continued on page 1038)*

SILVER SPOON ACQUIRED

Century

An All-American Meal

By MARION DARTNELL

AGAIN on Thursday, November 24, we will return to the old-time rites and customs that center around the Thanksgiving dinner, with its roast turkey, savory stuffing, giblet gravy, cranberry sauce and pumpkin pie. No homecoming and no dinner of the whole year is quite like that of Thanksgiving day.

Thanksgiving is a truly American celebration, borrowed from the Indians who every autumn feasted and gave thanks to the good spirits and their gods for the crops of corn, pumpkins, squashes and berries and for native game. December 13, 1621, was the day set apart by Gov. William Bradford for giving thanks for "all things in good plenty." The colonists' first great harvest festival was attended by Indian guests and observed with target practice and shooting, as well as with "other recreation," the nature of which will always remain a mysterious secret.

When we gather each year to celebrate Thanksgiving and dine on roast turkey and all the "fixin's," we enjoy an almost all-American meal, for the pumpkin pies, the cranberry sauce, the potatoes and sweet potatoes, the tomatoes in the salad, the vanilla in the ice cream that tops the warm Indian pudding, most of the nuts and the turkey itself are all native American foods. In fact it is quite possible to serve a Thanksgiving feast that is wholly an all-American meal, from soup to nuts. We can have bean or corn soup or clam chowder. Green peppers, potatoes, squash and sweet potatoes, lima beans, tomatoes, string beans and corn afford an abundance of vegetables native to our own land from which to choose. If we wish, we may even substitute butter made from palm oil for that made from cream, and we may use corn oil for frying. Peanut oil will serve as olive oil for the salad, and corn bread or corn muffins will do as well as bread made from wheat flour; while for sweetening there are various corn sugars and maple sugar. As a beverage we have cocoa, and there is a wide variety of strictly American desserts. Tapioca pudding, strawberries, pumpkin pies, corn starch blancmange, Indian pudding and various fruits—surely enough to satisfy any one. And of course there is the turkey—the real Thanksgiving bird with the equally American cranberry sauce.

Because of the part that the turkey plays in the national menu annually, some think it, not the eagle, should be made the national bird. Benjamin Franklin once advocated that selection, but it was the wild turkey he had in mind. The common wild turkey, such as the early colonists knew, was indigenous in almost all parts of what is the United States and was very beautiful, trim in form and stately of bearing. Like the pheasant, of which it is a relative, it roamed the ground, scratching for nuts, grains, small bulbs, seeds, wild berries and insects. Indians and New England colonists domesticated it, and since then it has lost the grace, agility and brilliant coloring of the game bird of centuries ago but none of its other qualities.

Whatever is in store for the turkey its place in the Thanksgiving ritual is secure. Brillat Savarin extolled the turkey in his lyric paragraphs on native American fare:

> It was charming to look upon, delightful to smell and delicious to taste; and so, until the last morsel was eaten, you could hear all around the table, "Very good! Exceedingly good! Oh my dear Sir, what a glorious bird"

In the old days, when extra leaves widened the table for big family dinners, it took a bird of 25 pounds or more to guard against that dreaded contretemps, "running short." As further reassurance on this point, the roast turkey had the support of a boiled or baked ham and some cold roast pork, not to mention heaping bowls of mashed potato, yellow turnip, creamed onions, squash, stewed dried corn, coleslaw with hot dressing, cranberry sauce, condiments and all the rest. Nowadays, most family marketers prefer the turkey to weigh between 8 and 13 pounds. Farmers are being encouraged to produce smaller birds for market use.

Turkeys are no longer allowed to scratch for their own food but are brought up on a balanced dietary elegantly served to them in agate pans screened from barnyard dirt. They come to the market plump. Most of them have been graded for qualities by federal and state inspectors at rural shipping points. There are four official grades: United States Grade AA, Grade A, Grade B and Grade C. To rate AA, a young hen turkey must be "fine grained, soft-meated, have a broad and full-fleshed breast, and the entire carcass must be covered with fat."

When coping with an ungraded bird the canny shopper looks for these points: a straight breastbone, an unmarred breast, flesh well rounded and a coating of fat underneath the skin. Experts say that one way to tell the age of a turkey is to feel the breastbone; if it is flexible the bird is young. Older turkeys have hard breastbones and are heavier for their size than younger ones. Turkeys of good quality are free from blemishes and have only a few pinfeathers.

Properly cooked, a grade B turkey may be made as good as a grade A bird at a saving of several cents a pound. The trick is to roast the bird, breast down, in an uncovered pan at a moderated temperature of 300 F. (about 20 minutes to the pound if it's a 10 pound size). The juices flow toward the breast. Low-temperature cooking prevents drying out of both white and dark meat and minimizes shrinkage. Flavor is preserved by stuffing the bird under the skin along the sides of the breast.

Next in importance to the richly bronzed turkey comes the stuffing, tantalizing the nostrils with savory scent. Turkey stuffings range from simple mixtures of seasoned bread crumbs to richer ones with the additions of oysters, chestnuts, sausage meat, chopped celery and even raisins and nuts.

When Thanksgiving shook off the shackles that had made it a local occasion and became a national holiday, sectional food preferences introduced certain variations in that vital matter, the turkey stuffing. The Thanksgiving day guest who doesn't know the "leanings" of his hostess may take his first taste of the turkey stuffing with an inward questioning.

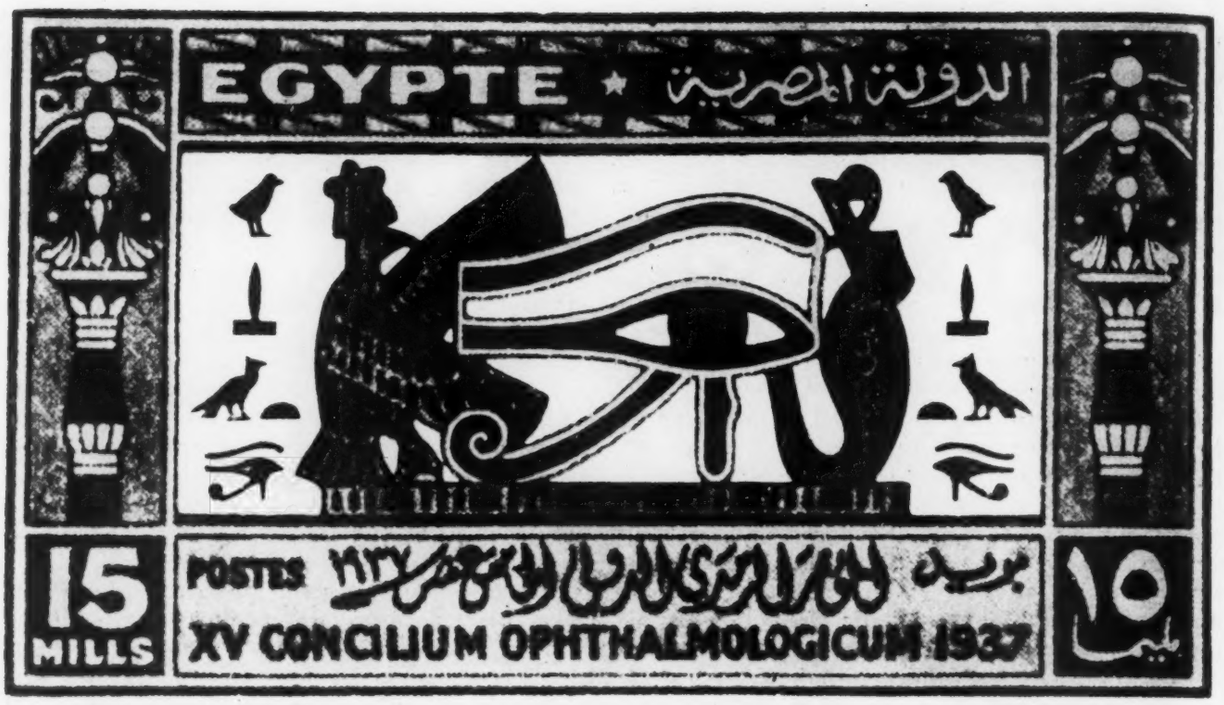
It may prove to be the moist stuffing of New England, savoring highly of onion, sage and poultry seasoning. It may be the richer stuffing of the Middle West, in which eggs bind the ingredients together and a little baking powder gives the mixture lightness. It may be fruited and nutted as they make it in California. It may be made of crumbled cornbread according to some treasured Southern recipe. Mushrooms or succulent oysters or the sweet meal of mashed chestnuts may blend richly with the bread that gives it body.

But, strangely enough, no matter how good it is, it will taste best to the diner only if it is the kind to which he is accustomed. Probably this is just one of the many facts that make it seem imperative for everybody who is away from home to get back there, by hook or crook, in time to join the family for Thanksgiving dinner.

Whatever goes into the stuffing, and whatever vegetables accompany the meal, rich brown gravy (with or without chopped giblets), mounds of mashed potatoes and the tart flavor of cranberry sauce are inseparable from the main course.

Potatoes and cranberries are as native to America as is turkey. The white potato was cultivated by the pre-Incan races of Peru, as well as by the Aztecs and the Mayas, thousands of years ago. It was carried to Europe by the Spaniards in 1520. From Spain the potato traveled to Ireland. When the British colonists sailed to establish settlements in New England, 300 years later, the "Irish potatoes" were included among the other plants and seeds to be cultivated in their new home. The low bush variety of cranberry is an American variety. Settlers of New England also found pumpkins or "pompions" along with what Higginson called "squantersquashe" and what Roger Williams termed "ascutassquashe" (soon clipped to "squash"), growing in "vast plenty."

The traditionalists, when they surrender to an altered pattern for the Thanksgiving dinner, agree to additions rather than any actual change. Thus there may be hors d' oeuvres and fruit cocktail that precede the main course. The celery, which was certainly the only green available for the dinner in the old days, may receive the support of a green salad. Green peas and broccoli may augment the hot mashed potatoes or candied sweet potatoes. The pumpkin pie may be glorified by whipped cream which has been sweetened, nutted and flavored with sherry. The warm Indian pudding or mince pie may have the dress-up of softened vanilla cream melting over its top. But in the main the nation brooks little change in the Thanksgiving menu: Turkey, stuffing, giblet gravy, cranberry sauce, mashed potato and pumpkin pie—made just as they used to be—form the main attraction of our perennial meal.



AN EGYPTIAN POSTAGE STAMP, ISSUED IN 1937 TO COMMEMORATE A MEDICAL MEETING, RECALLS THE ORIGIN OF ℞.

The Story of "℞"

By M. KOENIG

THERE ARE many instances in which the practices and symbols of the ancient past survive to the present day. Their original meaning may have changed many times since then, or a symbol may have become attached to ideas of varied and contrasting nature. Even the very appearance of the symbol may have become modified. Yet in some devious but persistent manner a symbol would survive and take place in the life of today. One such instance is the doctor's "℞," seen at the head of a prescription. Few realize that the origin of this little sign is shrouded in the mysteries of the ancient civilization of Egypt of sixty centuries ago.

The design of the postage stamp issued by the Egyptian government to commemorate the Fifteenth Ophthalmological Congress held in Cairo in 1937 recalls to mind the story of ℞. The stamp shows the Eye of Horus-Rē, the Egyptian god of the sun. The pagan gods of ancient Egypt were thought to possess human characteristics. Egyptians believed that the strife between good and evil goes on in heaven, even as on earth. So, according to one of the Egyptian myths, Seth, god of darkness and evil, always vied for power with his brother Osiris, god of light and good, and chief of gods. Finally he succeeded in murdering Osiris. Horus-Rē, son of Osiris, felt dutybound to avenge his father and save the world from the powers of darkness and evil. In a battle he conquered Seth but lost one of his eyes. Horus being the god of sun, a solar eclipse resulted from this injury. But Thoth, the god of healing, restored the eye and with it the sunlight. Thus Horus-Rē became the chief god of Egyptian religion, and his eye in its turn became a popular symbol of protection against evil, suffering and ills. In some peculiar way, so often encountered in human psychology, this belief still survives, but it is in a completely reversed form in the superstition of the "evil eye." Much more interesting however is its evolution into the ℞ of the modern physician.

Great and powerful was the Egyptian Empire. Its temples, which served as the centers of religion, learning and medical teachings, were known far and wide for their magnificent splendor. Great also was the renown of the priests and learned men of Egypt, and they were held in high esteem by the peoples of the ancient world. Mathematics, astronomy, architecture, medicine and knowledge of compounding drugs made up the bulk of the Egyptian science. But even the mightiest empires age and eventually die. And so it came to pass that the power of Egypt dwindled, and its magnificent temples gradually crumbled away. But the Egyptian lore did not perish. The sages of Egypt carried it to other countries, younger and more vigorous than the dying Egypt.

Thus, in the course of history, the Egyptian lore moved on to take part in the luminous

pageant of the Golden Age of Greece, and from there on again to take new roots under the militant banners of the Roman Empire. During this process the gods of the older pagan religions merged with gods of the younger pagan cults. Thus Horus-Rē, the Egyptian god of sun and the chief god of Egypt, became identified first with Zeus, the chief god of Greece, and later with Jupiter, the chief god of the Romans. With this metamorphosis, the Eye of Horus became, in a modified form, the sign of Jupiter. In taking over the Egyptian astronomy, the Roman students of stars dedicated various planets to their own gods. One planet was named after Jupiter; and the sign of the god, the former Eye of Horus, became the symbol of the planet Jupiter, which the astrologists believed to be a lucky planet.

Time went on, and with it came the slow but inevitable decline of the mighty Roman Empire. Christianity began to spread throughout the world. With the death of the pagan gods should have died all that belonged to them. Most of it did. But the sign of Jupiter, the old Eye of Horus, survived.

The early Christian era was a transitional period during which there went on a great deal of mingling of the old and the new. There was at the time a sect of Gnostics who tried to merge into one the various independent religious beliefs. They used the sign of Jupiter as a symbol of Redeemer-God and carried it as such into the third century.

Then came the barbarian invasions. The Great Migration produced an enormous disruption among the peoples of Europe. During these dark ages an appalling ignorance reigned supreme. Any knowledge was veiled under the cover of secrecy and mysticism, and the few learned men silently poring over the ancient handwritten tomes and scrolls were believed to be magicians and sorcerers. These astrologists and alchemists alone stood guard over the few still existing but distorted remains of the ancient Roman-Greek-Egyptian lore. In fact, alchemy, the forerunner of the modern chemistry, derived its name from the word "Khami," the ancient name of Egypt. From these limited sources these men obtained their knowledge of stars, nature and its various forces. Unable to find any light in the intellectual darkness that enveloped them, they often confused facts with superstitions. From the same inadequate sources they also gained whatever meager medical knowledge was there. In practicing medicine they tried to muster all the ill-assorted beliefs and information. When writing a formula containing drugs for use against a human illness, they would place the sign of Jupiter over the formula, because they thought that the influence of the lucky planet would protect the patient from any bad effects the drug might possess. Thus the Eye of Horus, in its modified form, lived again as the protector from ills.

During the ascendency of Arabs in the seventh century, this practice was continued. For almost 700 years the Arabian philosophy and science held their sway over Europe. The Arabian physicians, who gained a place of outstanding prominence in the history of medicine, used to place the sign of Jupiter over their prescriptions. Other medieval physicians, who obtained their medical training under Arabs or from Arabian sources, spread this usage throughout Europe. With Latin as the language of science, the sign of Jupiter acquired a new, more Latinized appearance. There is reason to believe that in this form it represents the first and the last letters of Raphael, the angel of sun. Somehow, in the deep recesses of the human memories was revived the old god of sun, Horus-Rē, and his sign was given over to his Christian analogue, the angel of sun, Raphael. And now in this, the final form, it is still being placed at the top of prescriptions which are written daily by physicians in all the English speaking countries.

When you look next time at your doctor's prescription, note the ℞ and remember that this little sign was born in a lore of 6,000 years ago. Its cradle is buried under the dust of ages. Yet through the Golden Age of Greece, past the Iron Legions of Rome, out of the romance of the Early Christianity, over the turbulence of the Great Migration, through the wars and plagues and confusion of the Middle Ages, out of reforms and revolutions, death of old empires and birth of new nations, it emerged to take its place in our everyday life and to rest finally on the neat prescription pad on the desk of the modern physician—a little ℞, a peculiar little sign—a great symbol of the eternal quest of humanity for relief from suffering.

THE EYE OF HORUS-RE, EGYPTIAN SUN GOD, SYMBOLIZED PROTECTION.

LATER IT BECAME THE SIGN OF JUPITER, CHIEF GOD OF THE ROMANS.

AND FINALLY (AS THE SIGN OF THE ANGEL RAPHAEL) THE PHYSICIAN'S ℞.

Tuberculosis up to Date: VIII

***Tuberculosis has points of attack other than the lungs, says* B. P. POTTER**

UP TO THIS POINT in this series of writings I have dealt with pulmonary tuberculosis. In this article I shall briefly discuss the so-called extrapulmonary lesions; that is, tuberculosis of the throat, intestines, bones and joints, skin, kidneys and so on. As has already been alluded to in one of the earlier chapters, tuberculosis of the larynx, or voice box, and tuberculosis of the intestines are caused by the constant bathing of these parts by sputum brought from the lungs. In case of the intestines, exceptions to this statement occur occasionally in children who ingest raw or unpasteurized milk obtained either from tuberculous cows or from well cows whose milk is contaminated during milking by one having tuberculosis with positive sputum. In fact this site may be the first evidence of infection and may serve as a contaminator of the lungs and other parts by way of the blood or lymph streams. While the latter course of events should be held in mind, it is safer for practical purposes to look for an open lesion in the lungs in every case of laryngeal or intestinal tuberculosis.

The frequency with which these organs are involved has been variously estimated. Generally speaking it can be said that individuals presenting a positive sputum which cannot be checked by some form of treatment are particularly exposed to infections of the larynx and intestines, and the probability becomes a real danger the longer the sputum remains positive. It is for this reason that, when permissible, bed rest therapy should be immediately supplemented by some form of collapse treatment, if convincing evidence points to involvement of these parts.

Accessory measures such as cauterization or burning out of the sores in the larynx, giving rest to the larynx by silence, and the use of artificial sunlight in cases without fever are indicated. Secondary treatment in intestinal tuberculosis consists in the use of high vitamin diet, cod liver oil, artificial sunlight and, in some cases, the injection of air or oxygen into the abdominal cavity.

The lesions of the other organs previously mentioned are always produced by tubercle bacilli carried by the blood and lymph vessels from the original source of infection which, as has been shown, is usually in the lungs. The bacilli are disseminated usually early in the evolution of the tuberculous process and, while they are in part destroyed by the immune factors in the blood, a good number are sieved out by the tissues of the various organs where further destruction goes on, but where, too, some may remain dormant for months or years. Hence one may find a tuberculous kidney or tuberculosis of the spine, years after the original lung lesion has become either completely fibrosed or calcified or, in some cases, when no residue is left because of complete absorption. It is because of this long refractive period between dissemination and disease that one often finds little or no evidence of tuberculosis in the lungs with the extrapulmonary tuberculosis. In active cases these extrapulmonary lesions, except those found in the larynx and intestines, are surprisingly infrequent.

As for the treatment of tuberculosis of the kidney, bone and joint, all that need be said is that surgery supplemented by light treatment plays the preeminent role. Each case must be judged by its own merits, and conservatism should be the guiding spirit.

The extermination of tuberculosis is a hope and a vision that will probably come true but certainly not for a long time. Meanwhile we are confronted with the following problems:

1. Prevention of contamination by finding cases as early as possible, segregating the patient with positive sputum and making a careful search for disease in all contacts.

2. Active treatment in all cases, especially in those in which a cavity is present. It is in this way, and this way only, that the number of individuals who break down with tuberculosis can be reduced, for contrary to all propaganda, the relative number of persons who become diseased, especially between the ages of 15 and 35, remains at the same level as when the crusade against the white plague began, and the death rate in the prime of life today still exceeds the death rate from any other disease. In addition to the strictly medical attack on the disease there must go hand in hand an improvement in the economic status of the people so that the citizen may have better living conditions.

This article concludes Dr. Potter's series on tuberculosis. But the fight against the deadly menace of the disease goes on unremittingly. To learn further how bad habits of hygiene and unwise living, plus infection, favor tuberculosis, tune in on Wednesday, December 7, to the program sponsored by the American Medical Association and the National Broadcasting Company. ***(See page 1030.)***

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1. A CHEERFUL ATTITUDE IS CHARACTERISTIC OF TUBERCULOUS PATIENTS UNDER GOOD CARE AND CAREFUL TREATMENT.

2. THESE TEN POUND BAGS PUT THE DISEASED PORTIONS OF THE PATIENT'S LUNGS AT REST BY COMPRESSING THE CHEST.

3. WHEN A LITTLE GIRL HAS A GOOD DOCTOR AND A GOOD DOLL TO HELP HER, THERE ISN'T MUCH FOR HER TO WORRY ABOUT.

4. ASBESTOS FILTERS WHICH LOOK LIKE TABLETS SEPARATE THE GERMS FROM THE CULTURE MEDIUM UNDER VACUUM PRESSURE.

5. EACH FLASK CONTAINS A BILLION TIMES A BILLION TUBERCLE BACILLI WHICH ARE KEPT AT BODY TEMPERATURE THERMOSTATICALLY AND ARE USED IN LABORATORIES FOR RESEARCH.

Photos, Courtesy of Life

PARASITE TRICKS: IX

The mighty mite, the treacherous tarantula and the self appointed black widow, who always "gets her man," are among the tricksters and tormentors described

By GEORGE A. SKINNER

THE BLACK WIDOW SPIDER IS EASILY RECOGNIZED BY A RED "HOUR GLASS" MARKING IN THE CENTER OF HER ABDOMEN. (FROM A PHOTOGRAPH MADE BY HERMS, BAILEY AND McIVOR OF THE UNIVERSITY OF CALIFORNIA.) AT RIGHT IS THE ITCH MITE, WHICH CAUSES SO MUCH SKIN IRRITATION.

CLOSELY RELATED to the ticks is another group of parasites that play most uncomfortable tricks on us, and on account of their diminutive size they are all lumped under the name of mites. Often they are the cause of skin trouble for a long time before it is suspected that the irritation is due to the presence of these disagreeable visitors. One of the most common of such skin troubles is called itch or parasitic itch and is due to the itch mite, Sarcoptes scabiei. The disease is often called scabies. This infestation is common among the class of people that are liable to have lice.

The mites are spread usually by close contact, crowding, sleeping with an infested person or wearing the clothing, especially gloves, of a person having the mites on his hands. It is the young fertilized females that start the trouble, for the older ones will not leave their haunts. The young females are fairly active and move about in search of a location, especially at night. After they attach themselves there may be little change for several weeks. Then itching is noted which gets much worse after going to bed. Generally not much attention is paid to this; but the person scratches, and soon new areas of itching will be noted. The first ones are usually between the fingers, and from there they spread to all parts of the body that the hands can easily reach. In the middle of the back the skin will usually be perfectly clear and normal. One trained in this observation can usually detect little tunnels in many places among the scratch marks, though sometimes after much scratching and suppuration these are difficult to find. Generally it is necessary to use a magnifying glass; then a slender, dark line can be followed to where it ends abruptly, and there a little black speck will be located. This is the adult female mite.

The males do not usually survive long after mating. The females burrow and deposit their eggs. The burrows may be from 1 to 4 inches long. The number of eggs varies from twenty to fifty and they hatch after two or three days into six-legged larvae. The first molt usually occurs after two days, and the mite acquires two more legs. Two days later the second molt takes place. The young mites are now ready to begin living apart. Mating takes place, and the young females start digging their own tunnels and laying eggs. It takes only from ten to fifteen days for all this to take place. It is not surprising therefore that the infestation spreads rapidly. These parasites do not as a rule live long away from the host. Dryness quickly destroys them. Cold is also detrimental, so they are not so active in the winter time. The females do most of the burrowing while the victim is in bed; hence the intolerable itching at night.

In neglected cases this infestation with itch mites may be severe and cause a more or less

generalized eczema over the body. Fortunately the condition is one that readily yields to treatment.

There are numerous mites affecting the human family, and they have many names as well as many symptoms. Almost every trade has its particular itch; some of these itches are due to chemical irritants and others to mites. One such, commonly called grocers' itch, is not common now but used to be prevalent among men who handled grain, flour and cereals; hence grocerymen frequently had it. When people slept on straw mattresses this itch was common. Such infestations are usually due to parasites called the grain itch mite, or Pediculoides ventricosus, which is much like the mite causing scabies. The results of the two are sometimes confused; but the remedies which remove the one will remove the other, so such mistakes are not serious.

Another mite producing grocers' itch is known as Glyciphagus prunorum. It appears to have no common name other than itch bug. There are a number of others more or less resembling these, but the ones mentioned serve to throw light on the tricks of these pests.

Few have lived in the country who do not know of the chiggers, or chigger mites. These are true mites, as they have eight legs. A tiny flea, the chigoe, is frequently confused with it. The chigger mite seems to have a name out of all proportion to its size, as it is a tiny red speck just visible to the naked eye; but the name Trombidium irritans is attached to it for all that. Often after people have worked in the fields or have rambled in the meadows or woods, especially if they have felt lazy and stretched out on some lovely grass patch to rest, they will be aware of a terrible itching and may decide they have hives or have been eating something that disagreed with them. But the residents of such regions will at once recognize the trouble as chiggers, or harvest mites. And as if the name previously mentioned was not enough for this tiny insect to carry, the young mites have still another name, Leptus irritans. This was primarily due to some confusion in the identification, when they were thought to be separate mites; but the name still clings to the larval forms.

Mites of this form not only are irritating but may be the means of spreading a disease in some countries. In Japan a serious fever known as river fever or tsutsugamushi fever is spread by such mites. They attack almost all animals, but rodents in particular, and convey the infection to man from rodents. While mites are prevalent in this country almost everywhere from Maine to Florida and west to the Rockies, no disease has yet been traced to them; whether they will yet trick us is for the future to reveal.

Mites attack from the ground. Hence if the grass is kept short they have less opportunity of attacking. Where workers must be among them, sulfur sprinkled in shoes and socks helps keep them off. Better yet are long stockings and tight leggings or boots. In the dangerous areas of Japan the workers use tightly woven suits which protect the entire body, leaving only the eyes visible. Spraying of shoes, stockings and trouser legs with one of the fly sprays is often successful.

In all the insects we have considered, the element of danger to man has been stressed, for most of them are intimately associated with some of the most serious diseases that afflict the human family. On the border between the insects that portend nothing but evil to us and those that we depend on to protect us, are the spiders. While spiders are generally feared and by the majority of people regarded as dangerous, or at least harmful, few of them really are. Most of the spiders are man's friends, and it is indeed unfortunate that they have acquired an evil reputation, for it often leads to the destruction of many valuable ones. Earlier writings associated them with evil spirits, with witches and dark magic, and they have never entirely lived it down. Only recently have students taken up their defense, as their real worth is gradually becoming known.

All spiders have poison glands, but this does not mean that all are poisonous to human beings. The poison is used as a weapon in procuring food, and even the most poisonous spiders will rarely use this weapon for any other purpose, unless in self defense or irritated beyond endurance. There is practically no evidence to support the theory that all spiders are poisonous, though a few undoubtedly are. But all are exceedingly valuable to us in their power to destroy insects, for without them insect control would be much more difficult.

Spiders are classed with the eight-legged arachnids under the name of Arachnida. The abdomen and thorax are connected by a short pedicle, or waist. There are four pairs of active legs; and sometimes there is apparently a fifth pair, as the palpi, called pedipalpi, are somewhat leglike but are really connected with the mouth parts and assist in the process of feeding. From the mouth project slender appendages with claw ends, and it is through these claws that the poison is expressed to paralyze the prey. Most of them have eyes, some as many as eight; but they are extremely primitive, and some spiders do not have any at all.

The spider web is so well known that little description is necessary. It is a remarkable structure, often exceedingly beautiful, always stronger than such a filmy creation would suggest. While an annoyance to the tidy housewife, it is a front line defense against the increase of insects and is the means of destroying millions of them annually. These webs are produced from materials stored at the end of the

abdomen, and the spider's skill in construction and spinning of webs is a matter of wonder to all of us. These webs serve to trap insects that are required for food, and once an insect strikes a web, its chances for escape are exceedingly small. The spider will quickly secure the victim by additional webs thrown around it, and it matters little how violent the struggles are, the web rarely breaks. The spider subdues the insect with poison, sucks out its juices and ejects it from the web. These little tragedies of the insect world may be witnessed almost any time by any one interested and are of great economic and medical importance in nature's scheme.

Of the spiders that may inflict poisonous wounds, one has come very much into prominence of late years under the name of the black widow. We might think this was a new variety, but it was described by the great naturalist Fabricius in 1775. Like many insects, it has had many names and in addition to the one mentioned it is called the shoe button, the hour glass, the pokmoo, the red rump and even more colloquial names. The technical name by which it is now known is Latrodectus mactans. It was at first thought to be a tropical species, for its habitat usually is warmer countries, but now it has been reported from almost all parts of the United States, even as far north as Minnesota, and from Canada. Many cases of poisoning have occurred and, while possibly some of these have been overstressed, it is well for us to be informed as to the truth, for serious symptoms may well follow such bites.

The study of the black widow spider has brought out some interesting facts as to the changes in habits of forms of low life that have been forced on them by the presence of man. When once these changes have been made they seem to like them and adapt themselves readily to them. Normally these spiders lived in hollow stumps, under stones, in long grass, vacated rodent burrows and the like. But as man has gradually occupied the woodland and meadows and has put up chicken coops, stables, granaries, garages and other outhouses, the spiders have been deprived of their natural habitat and have taken up residence in the dark corners of these buildings; and it is in such places that they are now usually found. Hence many bites are reported as occurring in garages, closets, privies and stables. It is only the female that needs to be considered, as it is her bite that causes the trouble. She is rarely aggressive unless she is guarding her eggs or is exceedingly hungry. These spiders are most abundant in the late summer, when the early broods have matured.

The female spider is much larger than the male. She is usually jet black but may shade off toward sepia. Sometimes there is a little left-over white from earlier *(Continued on page 1040)*

Forecast for December

A happy, healthful holiday season—if you follow *Hygeia's* lead.

Even in a supposedly enlightened age, superstition still thrives on ignorance; and racketeers and mountebanks thrive on both. In keeping with *Hygeia's* policy of relentless exposure of fakes and frauds, *S. R. Winters* describes these medical impostors in "'Doctors' Minus M.D.'s."

A word to the wise: "Bad Christmas tree lighting fixtures or candles, and short circuits in defective electrical wiring and lamp cords are not infrequent causes of trouble," says *Dr. Eugene F. Traub* in an informal but informative article on "Burns."

For youngsters, Christmas is usually spelled T-o-y-s. If you want to choose the right toys for yours, *Dr. Herman M. Jahr's* article "The Magic of Toys" will prove helpful. It's full of good ideas.

And as Christmas isn't complete without some thought of Christmas feasts and festivities, we give you "Mr. Pickwick and the Streamlined Christmas" by *Marion Dartnell.* You'll like it!

IN A NUTSHELL

By HARRIET MORGAN FYLER

WHEN THE HILLS turn mysteriously from green to red; when the woods deck themselves with the gaudy hues of carnival season; when oaks and maples paint their neighborhood crimson; when the gum tree, the sassafras and the little Japanese barberries don coats as variegated as Joseph's of old, and the elderly hickories flaunt out in the sunny saffron of flaming youth, we say it is autumn.

The feeling of exhilaration and uplift that we experience on a fine autumn day, while partly due to the state of the atmosphere, is probably also in part a reaction to the sumptuous colors of the landscape, the veiling of distant objects in a soft haze, the aroma of leaf-dust and smoke that pervades the air. October usually brings us the largest share of typically autumnal days. It is the month of "golden" weather; the best of the year for life outdoors. It is also the month when nuts are gathered in the woods, stored in the attic and cracked at leisure before home fires on long evenings, with sweet cider as an accompaniment. Cracking and eating the nuts is a ceremonial that puts most of us in a mood of tender reminiscence. The bowl of unshelled nuts is valued as one of autumn's most precious food gifts.

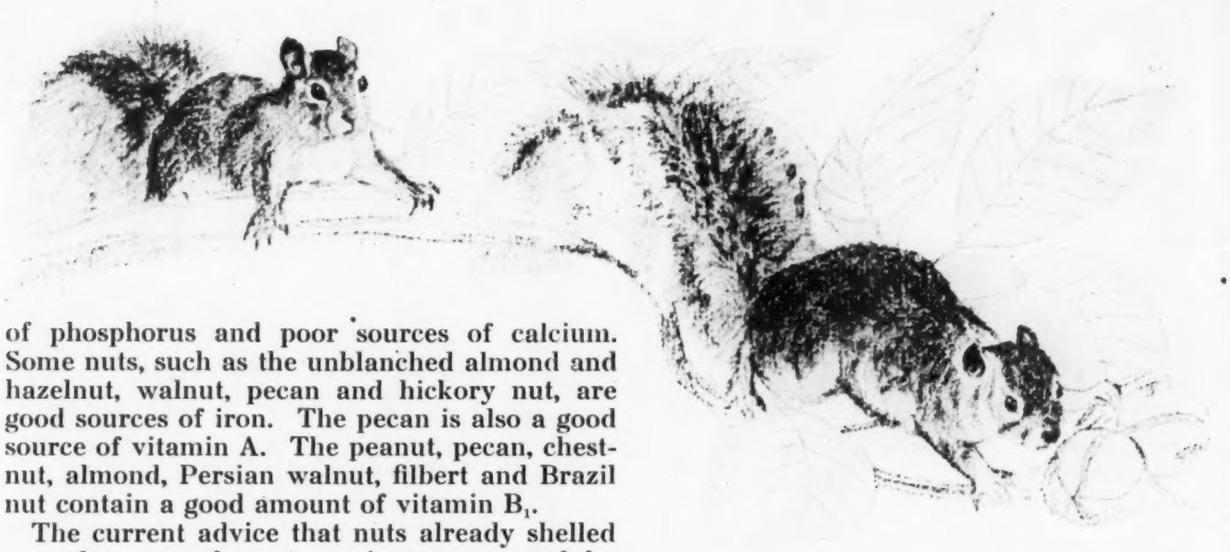
There are many varieties of nuts available. First choice today is the Persian (English) walnut, now grown for the American table in California almost exclusively. Second preference is the native American pecan, treasured by Algonquin and Ojibway, and at present grown to unprecedented size in the soft climate of Texas. The native pecan is steadily increasing in popularity as cultivated trees produce more of the large, thin-shelled varieties with fewer of those inner kinks that housewives used to dread.

The almond, the stone of a fruit, is another popular choice. The cashew, that comma-shaped nut from India, is growing in popularity. It is never seen here in its shell, because it is not edible until a caustic oil has been removed from its covering. The Brazil nut, imported from South America, and the chestnut, imported mainly from southern Europe, also rank among the best sellers.

Aside from the Persian (English) walnut, the Brazil nut, the pecan, the cashew, the almond and the chestnut, there is a popular demand for the black walnut of eastern North America and its California variant, Juglans californica, and for the filbert, that relation of our domestic hazelnut deriving from Europe, where it was named for St. Philibert. New England particularly has the shagbark hickory nut, very sweet and easy to crack, but it is mostly consumed in its habitat and seldom is vouchsafed to the market.

Regardless of the wide variety of tree nuts in the market the humble, ubiquitous peanut, not really a nut but a legume, is still the favorite. At least twice as many peanuts as all the tree nuts combined are consumed in this country during a year.

Nuts are very rich in food energy. Most nuts are extremely rich in fat. For this reason it is better to consider them as sources of fat rather than of protein and to use them interchangeably with other fatty foods, such as butter, oils, cream, chocolate and bacon. The pecan contains over 70 per cent of fat; the Brazil nut, butternut, filbert, hickory nut and Persian walnut, over 60 per cent. The eastern black walnut, almond, beechnut and pistachio have over 50 per cent; and the cashew, pine nut (pignolia) and peanut have over 40 per cent. In protein content the different nuts range from less than 5 per cent to over 30 per cent. The total carbohydrate in nuts is less than 25 per cent except in the chestnut. The dried chestnut contains about 80 per cent of carbohydrate, chiefly in the form of starch. Most nuts are rich sources



of phosphorus and poor sources of calcium. Some nuts, such as the unblanched almond and hazelnut, walnut, pecan and hickory nut, are good sources of iron. The pecan is also a good source of vitamin A. The peanut, pecan, chestnut, almond, Persian walnut, filbert and Brazil nut contain a good amount of vitamin B_1.

The current advice that nuts already shelled are often a real economy is not accepted by rustic folk. The flavor of nuts is largely dependent on the oils which they contain. Once the nuts are shelled the oils readily become rancid and then give a disagreeable flavor to the nut kernel. A bad-tasting nut may spoil the flavor of an expensive cake or pudding. Many persons prefer to buy nuts in the shell; they are cheaper and less liable to contamination; but fresh nuts which have been shelled under sanitary conditions are available in the market. The approximate number of pounds of nuts in the shell required to yield one pound of shelled kernels is as follows:

Almonds	3¼ pounds
Filberts	2¼ pounds
Peanuts	1½ pounds
Pecans	2½ pounds
Walnuts, Black	5½ pounds
Walnuts, Persian	2½ pounds

The limp nut ranks with the limp salad as anathema. Nuts should be crisped, if not browned, before being used for any purpose whatever. The flavor of most nuts is developed by either roasting or frying, which makes them more desirable for use in baked products, such as nut breads, cakes and cookies. For ice creams and candies the addition of salt to the fried or roasted nuts is a further improvement.

A quick way to freshen nuts is to place them in a shallow pan and roast them in a hot oven (300 F.) until brown. They should be stirred occasionally in order to brown them evenly. Frying in oil is another good method if the quantity of nuts to be browned warrants the use of a large kettle and one quart of fresh cooking oil. This is best done by heating the oil in a kettle adapted for deep-fat frying until it reaches the point at which it will brown an inch cube of bread in 60 seconds (a temperature of 300 F., if you are fortunate enough to own a deep-fat frying thermometer). The nut kernels are then placed in a sieve deep enough to prevent them from floating over the top and immersed in the hot oil for 6 or 7 minutes, or until they are browned. They are then drained on absorbent paper and while still hot are sprinkled with salt.

Tender-skinned nuts, such as walnuts, pecans, hickory nuts and butternuts, are browned unblanched. Tough-skinned nuts, such as almonds, chestnuts, Brazil nuts and filberts, are blanched first. Blanching is a method of loosening the skin so that it can be easily removed from the nut kernel.

Almond and chestnut skins are removed easily after soaking in hot water, but the skins of Brazil nuts and filberts are not so readily loosened. It is necessary to add a strong alkali such as granulated lye to the blanching water in order completely to loosen the skins. For this reason many housewives prefer to buy Brazil nuts and filberts already shelled and blanched; but for those who prefer to do this work at home the following methods are given:

To blanch almonds, pour boiling water over them and hold at a simmering temperature (185 F.) for about 3 minutes. Remove them, and drain off the water. The skins will then come off easily when pressed with the thumb and forefinger at the pointed end of the nut. Spread the blanched kernels on absorbent paper and dry.

To blanch Brazil nuts and filberts, prepare in an agateware or iron kettle a lye solution, using 1 level tablespoonful of granulated lye for 2 quarts of water. Heat to the boiling point, and immerse the kernels until the skins loosen. Rinse and remove the skins while the kernels are still warm. Wash thoroughly in cold water and dry.

To shell and blanch chestnuts, cut a gash on the flat side of the shell, cook the chestnuts in boiling water to cover for 15 minutes, and remove the shell and brown skin.

Now to tell of all the good things that can be made with nuts during the coming months

when they are so cheap and plentiful. There are many recipes for making good things from nuts. "Soup to nuts" is no longer an accurate phrase, for nuts may go into the soup (cream of peanut butter soup is a growing favorite), turn up appetizingly in fish sauce, poultry stuffing, salad or ice cream. The mild-flavored nuts, especially blanched almonds, are good in creamed fish and meats, such as chicken, crab, tuna, shrimp or sweetbreads. The breast of chicken may be dipped in a batter to which broken almonds or pecans have been added, and fried in deep fat.

As in other branches of cookery, ways of making good things from nuts vary. New recipes will mingle with old, as one part of the country borrows from the cooking lore of another and from that of the world at large. The Continental nut torte, the Chinese almond cookie and other "foreign" delicacies will compete for favor with nut bread, nut and fruit cake, fudge nut squares, pecan pie, nut crunch and that special confectionery delight of the chief pecan tree belt—the pecan patty, praline or dulce.

A recipe for those famed pecan pralines as given by a Southern cook of the old school is this:

> Take 2 heaping cupfuls of "plantation" or dark, unrefined sugar. Stir in 1 cupful of milk and a pinch of salt, and bring the mixture to a boil. Then add a pinch (well, not more than one-eighth of a teaspoonful, if you must say it the "new" way) of cream of tartar, and cook the syrup slowly until a fine thread of it spun from a spoon and blown with the breath will wave and bend but not break.
>
> Then add a good-sized chunk of butter, and beat the mixture until it is creamy but not too thick to run, next stirring in 1 cupful of halved pecans and dropping the mixture from a tablespoon on to a greased slab or platter. The mixture will spread into creamy patties, leaving the nuts heaped up in the center.

Other favorite recipes with nuts are:

Fudge Squares

2 squares chocolate, melted over hot water
½ cupful butter
3 eggs, well beaten
¾ cupful bread flour
1 cupful sugar
½ teaspoonful baking powder
½ teaspoonful salt
1 cupful chopped walnut meats
1 teaspoonful vanilla

Add butter to chocolate; stir until melted. Add sugar slowly to eggs. Add flour sifted with baking powder and salt. Add nut meats, vanilla and chocolate mixture. Spread in a shallow pan, and bake from 15 to 20 minutes in a moderate oven (350 F.). Cut in squares while still warm, and roll in powdered sugar.

Quick Nut Bread

3 cupfuls bread flour
1 cupful sugar
4 teaspoonfuls baking powder
1 teaspoonful salt
2 eggs
¾ cupful milk
2 tablespoonfuls fat
1 cupful chopped pecans, Persian walnuts or black walnuts

Cream together fat, sugar and eggs. Add nut kernels. Stir in milk alternately with the sifted flour, salt and baking powder. Pour batter into a well oiled loaf tin. Bake in a moderate oven (350 F.) for about 40 minutes, or until done.

Refrigerator Nut Cookies

½ cupful sugar
½ cupful brown sugar
½ cupful fat
2 eggs
2 cupfuls flour
½ teaspoonful cinnamon
½ teaspoonful nutmeg
½ teaspoonful soda
½ teaspoonful baking powder
¼ teaspoonful salt
½ cupful nut kernels

Cream the fat and sugar and the eggs. Sift the dry ingredients together, add the nuts, and combine with the first mixture. Stir until blended. Chill, and then form into a roll of the desired size. Roll in wax paper, and chill thoroughly. When solid, cut crosswise in thin slices with a sharp knife. Bake for about 10 to 15 minutes, or until lightly browned, in a moderate oven (350 to 375 F.). When crisp, remove cookies from baking sheet.

Pecan Pie

1 cupful pecans
3 eggs
½ cupful sugar
1 cupful dark corn syrup
⅛ teaspoonful salt
1 teaspoonful vanilla
¼ cupful melted butter or fat

Beat the eggs, add the sugar and the syrup, then the salt and vanilla, and last the melted fat. Place the pecans in the bottom of an unbaked pie crust. Add the filling, and bake slowly in a moderate oven (350 F.) from 50 to 60 minutes.

Nut Brittle

2 cupfuls nuts
2 cupfuls granulated sugar
¼ teaspoonful salt
¼ teaspoonful soda
1 teaspoonful vanilla

Heat the sugar gradually in a frying pan. Stir constantly with the bowl of the spoon until a golden syrup is formed. Remove from the fire, and stir in quickly the salt, soda and vanilla. Pour the syrup over a layer of nuts in a greased pan. When cold, crack into small pieces.

Torkel Korling

PLAY SAFE!

The play yard—not a prison but a safe haven in which the child's body, mind and personality find opportunity to develop, as described

By KATHERINE BROWNELL OETTINGER

PLAY LIFE looms as an increasing problem as the baby's growing ability to move about and explore endangers his safety. He needs freedom from adult direction. He needs to investigate his world unhampered. Social constraint robs play of its very essence; spontaneous activity springs from within. How can this busy, imprudent 7 or 8 month old be allowed to follow the dictates of his curiosity in the average household? How can the mother provide for his safety and still allow him joyous, profitable play devoid of interference?

Is the play yard a prison or a haven of safety in which he pursues his developing needs in learning by doing? If it is used wisely, he may be placed in the play yard from the time he is able to sit up without toppling over, until he is able to navigate with sufficient understanding to be trusted in a room or a porch especially equipped to minimize dangers. If the baby is accustomed to this restriction for well defined periods each day, there will be no rebellion on his part, but he will enjoy the emotional security in this small area which is distinctly his own, akin to that which an adult feels for his home. Of course, there must also be periods of play outside the yard with the happy companionship of other members of the family. This play time increases with the age of the child. It provides a chance to creep and later to walk, push, pull and lift and fully to exercise his growing knowledge and skill. Extension of his liberty thereafter offers fascinating opportunities. He has been saved from boredom in having too early conquered all his worlds.

Let any mother who rejects the idea of the play yard's limitation of freedom consider the other possibilities: a room covered with cork carpet, which must have furniture such that the child can neither hurt it nor be hurt by it; the high chair, which gives no opportunity for movement of the large muscles; the crib, which is too soft and should be associated only with sleep, and the walker, which prematurely provides locomotion before the intelligence is ready to guide the baby. This precocious artificial forcing also contains the fallacy that walking is merely a matter of readiness of the legs. The walker confines the rest of the body, while the legs bend as the child propels himself by the sides of his feet. On the other hand, the play yard gives an opportunity to crawl, pull, grasp the sides of the yard and safely manipulate

and coordinate the body. All the muscles of his body are preparing themselves for that moment when he can walk alone! Once this moment has arrived, the baby will not be forced to abandon the protection of holding the sides of the yard before he is ready. His earliest experience in physical development has given him courage. This foundation will promote a feeling of security in conquering the later problems of running, climbing or skipping.

Independent initiative can develop free from the perpetual "do's" and "dont's" of adults. He may use his play material in his own way without direction. Only the things that are safe and helpful are placed within his reach. Toys that develop sensory experience may be tied to the sides of the yard so that it is just as much thrill to pull back the toy as it was fun to toss it over the sides. Nobody need come to his aid in reclaiming the lost article. He may concentrate on his own interests without haste or overstimulation. Everyday events are unbelievably new and exciting to him. He needs time to try to catch the sunbeam as it passes across his yard. Adults jouncing him up and down, presenting many toys, carrying him from room to room and providing odd noises are only a distraction. He has his own small world to discover. He can make his own noises. He can manipulate things best at his own rate of speed. The habit of success becomes the backbone of his experience for he has never been discouraged by having to undertake too complicated tasks. Nor has he been deprived of the sense of accomplishment by excessive babying when his unfolding capacity permits conquering larger fields.

A baby, given toys carefully selected for his age and placed in a play yard without adult supervision, is building a healthy attitude toward social relationship. How can the mother who is not assured of her baby's safety turn a deaf ear to fretful crying and pleas for constant entertainment? The child's attention-getting devices must work where the mother anxiously flutters about and keeps him well in sight to protect him from harm. He may learn to rely on his own resources while the mother is busy with household chores. Even if the baby can be surrounded with innumerable nurses, a happier social adjustment is created if he is left alone in a well ventilated room, preferably near a window where he may watch the people coming and going or observe the slow-moving bus as it rumbles up the hill. In the warmer months he may be dressed in a sun suit and placed on the porch or in the back yard. Added to the benefits of relying on his own resources, he is also receiving the direct rays of the sun during the best hours of the day.

Too great dependence on adult companionship interferes later with his adjustment to companionship with children of his own age. This need for play life together does not appear until the child is about 2 years old. Two infants playing in the same room pay little attention to one another. The child's early need is to feel, hold, taste and learn to manipulate things himself. Simple objects such as a spoon in a cup, boxes and empty spools of thread on sturdy tape answer this need for the young child. Thus with the minimum of distractions he concentrates on his own interests of finding out about this strange world! The comparative isolation of the play yard then meets the needs of this stage of mental growth, which is closely associated with skill in managing physical movement of the larger and smaller muscles.

These first years reap a terrific toll in unnecessary household accidents. Statistics clearly demonstrate the hazards in the ordinary home. Physical safety therefore recommends the play yard quite as much as the opportunity for healthy emotional growth. The very nature of the baby prompts him to pick up and examine any foreign article which comes within his sight. A dirty crumb on the floor is impetus enough to scamper across the kitchen, seize it and put it in his mouth. These tempting objects are frequently dangerous enough to cause a poisoning or a chronic malaise. Any mother will tell you that the coal pail is a first port-of-call. Her nerves become frayed and her temper short protecting her child from things from which he must be kept away: the stove, the demoniacal washing machine, the precipitous steps.

If a commercial play yard is unavailable, a well proportioned homemade play yard can be fashioned from old boxes. This should be at least 4 feet square, so that the baby's activities will not be curtailed too abruptly, and about 2 feet high, which makes it possible for small arms to reach and pull. The sides may be covered with window screening and the top boards and rough edges covered with canvas, so that any attempt on the baby's part to chew the top of the yard will not be disastrous. Likewise it is important to avoid splinters by an adequate floor covering. An ingenious father can create a play yard best suited to the home environment and may even take some pride perhaps in this contribution to his baby's welfare. After all, he has then been able to provide the first requisite for good play habits: a place to play!

Play does more than give pleasure. It is a fascinating medium of the child's learning. Full rounded living demands that play serve a wider purpose than just keeping the child quiet. It develops his body, his mind and his personality. It has been a powerful enchanter, calling forth the child's whole self. Keeping happily busy develops perseverance, concentration and self reliance. The way of wholesome play life is not complicated; parents need only give consideration to the proper environment and leave the baby alone to grow.

OYSTERS and OYSTER FARMING (Continued from page 978)

country is subject to more stringent sanitary regulations than the oyster."

"Modern researches on foods and nutrition," according to Dr. E. V. McCollum of Johns Hopkins University, "have brought to light many surprises, both as regards the nutritive needs of the body and the dietary properties of individual foodstuffs, among which the most marked contrasts have been found. In no case have any foods gained more recognition as having unique dietary values than have the principal fish and shellfish." This is not a surprising statement when one reviews the conditions of life in the sea. Throughout the ages, the seas have been enriched by the erosion and washings of the land, by material from outer space and from the interior of the earth. In the impoverishment of our uplands, the more soluble substances, the nitrates, chlorides, iodides and bromides, go soonest and most completely. Every stroke of lightning oxidizes some atmospheric nitrogen to nitric acid which aids in dissolving minerals as nitrates. The processes of plant growth serve to rob the soil. Carbon dioxide in the air dissolves in rain water and increases the solubility of limestone and thus makes it available for transportation to the sea. Thus by a combination of these and many other factors the land has been impoverished and the waters of the seas enriched. In fact sea water contains all the organic nutrients in approximately the proportions to which living things are adapted.

As a matter of record, the most extensive fisheries of the world are located in the north temperate zone adjacent to the massed land areas with their extensive coastal indentations and large continental shelves covered by relatively shallow water teeming with an unequaled supply of fish food. These areas are extremely productive of diatoms, peridinians and other microscopic life collectively known as plankton, the principal item of food of oysters, members of the herring family and others, which directly convert these organisms into food for man.

Therefore it is not surprising to find seafoods especially rich sources of minerals and vitamins. For example, oysters are known to contain all the minerals which have been found necessary to maintain health, being especially rich in calcium, copper, iron, phosphorus and iodine as well as being good sources of certain of the vitamins. "Since both oysters and clams are frequently eaten in the raw state," as Dr. McCollum points out, "they occupy an unique position in that they are the only foods of animal origin which in the temperate regions can take the place, in a measure, of fresh, raw, vegetable foods."

Considering the losses in the uplands of soluble nutrients, resulting in the increased incidence of certain deficiency diseases such as goiter, common to man and his domestic animals, encouragement might well be given to supplementing our diet more often with sea foods. The sea is not an inexhaustible source of food, large areas being little more than barren wastes. Over the important species of marine fishes, man can exercise only nominal control in his efforts to maintain an abundant supply. Through oyster-farming operations he can greatly augment his supply of this delectable seafood. It has been estimated that there are approximately 13 million acres of land along our tidal waters which potentially might serve for oyster farming, yet at the present time only about 1 million acres are actually productive, and much of this is only nominally so. At the present time the United States produces only about 14,000,000 bushels of market oysters annually as compared with a record of more than 30,000,000 bushels or more. Therefore the epicure need have little fear for a scarcity of oysters so long as the oyster farmer is properly compensated for his labors.

Our oysters are edible throughout the year and are eaten by many persons close to sources of supply. When full of spawn, they may be less attractive to some, and after spawning the meats are not so plump and solid as in the winter months. How then did the custom arise of confining the consumption of oysters to months having an "R" in them? Apparently this custom dates back to antiquity for there is an old Latin phrase to the effect that "Oysters should be eaten only in certain months." One explanation of this is that in the English oyster (Ostrea edulis) the young are retained in the chamber for a week or more, and during this period develop the rudiments of the fully formed shell, which is shaped more like a cockle than an adult oyster, the tiny larvae passing through successive color changes from white to gray to blue-gray, slate and finally to purplish black. During this period of development of young, that is, during the summer months, it is not surprising to find that the English oyster is not marketed. To supply the English summer trade, large numbers of our eastern oysters are exported to England in March and April, planted on suitable grounds and marketed as needed.

Unlike the English oyster, our eastern oyster (Ostrea virginica) in spawning discharges the sex elements direct into the surrounding

(Continued on page 1055)

Oyster Institute of North America

THE HARVESTING OF OYSTERS WITH LONG-HANDLED SCISSORS-LIKE TONGS AFFORDS EMPLOYMENT TO MANY THOUSANDS OF WATERMEN.

Ewing Galloway

IN "LITTLE JOURNEYS AMONG HIGH SCHOOLS" PHYSICAL EDUCATION IS FOUND IN SOME PLACES TO DEAL WITH DEVELOPMENT OF INDIVIDUALIZED SPORT PROGRAMS, WHICH ARE NOT NECESSARILY COMPETITIVE.

SCHOOL and HEALTH

Conducted by J. MACE ANDRESS, Ph.D.
67 Clyde Street *Newtonville, Mass.*

THE NEW PHYSIOLOGY

THE FIRST physiologies for children now belong to the museum. As might be expected they are now antiquated in both scientific content and methods. Horace Mann was responsible for the introduction of physiology into the curriculum, and in his sixth report he discussed at length the value of such study. There was some confusion in his own mind as to its purpose for not only did he have a vague conception as to its relation to health, but in company with the phrenologists of that day he thought it might be useful in understanding human beings better and so guiding them in their destiny. Usually these first books were written by physicians who were fundamentally interested in disease rather than in health. Such books were filled with details of anatomy and physiology which pupils were supposed to commit to memory. One of the stunts required of every pupil was learning the name of every bone in the body. When there were visitors the teacher of the district school often showed off her bright pupils by sending them to a chart to point out each bone and name it. In some mysterious way such knowledge was supposed to have value. Little wonder that in later days this period in the teaching of physiology was referred to as the "bone age." Another stunt was the tracing of the journey of a drop of blood around the body. The teaching of useless facts was not unique in this one subject of physiology. In arithmetic, children learned the table of apothecaries' weight as if they were all preparing to be clerks in drug stores. Details of English grammar were being mastered with the idea that it would greatly improve their speaking and writing.

The content and the spirit of these old texts were retained until well past the opening of the present century. Even as I write I find a children's textbook on health, written some fifteen years ago, which presents a drawing of the human skeleton. Each bone is named. Physiology was gradually crowded out of the curriculum although legally it was supposed to be taught. It was usually cordially disliked by both teachers and pupils. Often children were not marked in the subject, and as the demands for excellence in a rapidly expanding curriculum increased, the time scheduled for physiology was used for other subjects. Pupils found it dry and tiresome.

The World War was responsible for a right-about-face in the teaching of what was usually called physiology. When the war was at its height the nation suddenly be-

came health conscious. The call to arms for all men between certain ages showed that every third man was incapable because of mental and physical defects, a large percentage of which were remediable. Leaders arose who pointed out that our schools were at fault. What had our school doctors, school nurses and teachers been doing? The war led to the skyrocketing of foodstuffs; households were disorganized, and malnutrition was common. At this moment the public was in the mood psychologically to realize that the children of the nation were a basic asset. Children needed to be taught healthy living. The new leadership demanded that children should be taught health habits. Dramatic procedures were initiated. Health clowns, fairies, plays, posters, musicales, badges and all sorts of contests were used to capture the attention of school children. The word "physiology" tended to disappear in the list of school studies. In its place came the word "health." There was less about disease and more about how to retain and improve one's health. The "bandwagon tactics" of the new movement did sterling service, but it meant a reorganization of subject matter and method. There ensued groping and fumbling to get a new foundation. In this reorganization the old physiology and anatomy largely lost their hold. It became good sport to poke fun at the bone age.

The fervor of the showmanship of those days has now spent its force. It was not long before health educators began to feel that the content of the new courses of study in health was exceedingly thin. After all, making health posters, singing health songs and working for health badges might leave boys and girls with a superficial knowledge of health. Children might be led to form certain health habits but resent a certain amount of nagging. Pupils were graduating from grammar school and even from junior and senior high school profoundly ignorant of basic information about health. This "lean" curriculum was furthered also by a tendency to teach health merely through other subjects such as geography, general science and drawing. Teachers of these subjects were not fundamentally interested in health, and this hit-and-miss method was not conducive in most cases to a satisfactory grasp of a knowledge of healthy living.

There has been a gradual awakening to the need of "fattening" the health program. In this swing of the pendulum it is obvious that physiology is coming back—not the antiquated physiology of the past but a new physiology, not only new in its content but new in its method and aims. It is able to justify itself in our new educational philosophy. There are at least two reasons for the study of physiology.

The first of these reasons is to satisfy the child's natural curiosity. That eternal "Why?" sometimes makes adults want to stop up their ears or run away; yet this curiosity is one of the most precious attributes of childhood. It leads the child to explore the world around him. It is quite as important for him, if he is not to be a stranger in his world, to know why he breathes and how he sees and hears as it is to know about birds, plants and flowers. There seems to be a good reason for teaching some simple physiology even down in the primary grades. Certainly nobody should graduate from a high school without knowing in an intelligent way how the body works. But lack of this knowledge is altogether too common today. The reading of the newspaper and magazine and listening to the radio could often be carried on more intelligently if the reader or auditor had some knowledge of physiology. Frequently such knowledge would protect one against frauds and fakes.

The chief reason for the teaching of physiology is to make the pupil intelligent about the working of his own body so that he may cooperate with it efficiently. The bone age has passed; but there is still need of teaching about the bones. What is their function? How do they grow? What food is needed for their growth? How can one avoid accidents to the bones? What may one do in an emergency? The physical body needs to be studied in the light of its needs. The main question then is, "What can we do to help the body perform its work?" Fortunately we have today thrilling stories about the researches that have been made in our science laboratories. Whole new chapters, such as the one on the ductless glands, are being written.

Today any course of study or program of education which does not provide a place for the new physiology must be counted as a back number.

To Contributors:—*The editor of the School and Health Department will be pleased to receive articles dealing with the actual solution of concrete and practical health education problems in the school. Contributions on general theory are not solicited. Articles must not exceed 1,000 words in length. Stamps should accompany manuscripts to insure their return if rejected. All articles accepted will be paid for at regular rates. Address Editor of School and Health Department of* HYGEIA, *67 Clyde Street, Newtonville, Mass.*

Food Experiments for the Classroom: III

Proteins

ETHEL AUSTIN MARTIN
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National Dairy Council

More intriguing experiments in testing foods are carefully outlined by Mrs. Martin in the following article. Teachers wishing to follow the author's suggestions for the year would do well to consult her two previous articles in the September and October numbers of HYGEIA *if they have not already done so.*

THE foods we eat perform three functions in the body: They furnish energy; build and maintain body parts, and regulate body processes. Six dietary essentials, found in foods, fulfil these functions. Some of these essentials are used by the body for more than one purpose. Carbohydrates and fats, whose sole function in the body is to supply energy, have been discussed in the two preceding articles. The present article is concerned with proteins, a third grouping of dietary essentials, which are also capable of producing energy but which have a second and more specialized function as well, that of building and repairing muscle tissues. It is this building function which makes proteins indispensable to the body. They will therefore be discussed here largely from the standpoint of this distinctive contribution.

Protein Foods

The word "protein" is a less familiar term than sugar, starch or fat. It is well therefore to become acquainted first with the foods which contain enough protein to be called protein foods. The foods in this group include lean meats, cheeses, milk, fish, eggs, fowl, dried legumes (seeds, as beans and peas) and nuts. A study of this list and the accompanying photograph will show that protein foods are of two sources, animal and vegetable, and that all belong to the animal group except the legumes and nuts. (Cheeses and milk are omitted from the photograph because they are grouped with other dairy products in a picture to appear later in this series.) Cereals, although not classed as protein foods, because they contain such a small percentage of protein, are actually an important source because of the large total quantity of cereals which are eaten. Animal proteins are somewhat superior in food value to vegetable proteins; therefore it is desirable to take a liberal proportion of our proteins in the animal form. It should be understood, of course, that the general usefulness

PROTEINS ARE OF TWO SOURCES, ANIMAL AND VEGETABLE, AND ALL BELONG TO THE ANIMAL GROUP EXCEPT THE LEGUMES AND NUTS. ABOVE ARE LEAN MEAT, FISH, PEANUTS, EGGS AND BEANS, WHICH CONTAIN PROTEIN.

to the body of protein-rich foods depends on other dietary essentials which they possess as well as on their protein content.

Among the animal proteins are flesh foods and eggs. Lean meats are a large and important division of the protein foods. They are similar in food value to fish and fowl. Muscle meats furnish protein which is of good nutritive value itself and is also efficient in supplementing the proteins of cereals. Eggs, in addition to being a good source of protein, have certain protective qualities which make them an important food. Cheeses are often referred to as concentrated forms of milk. The proteins of milk, casein and lactalbumin, are especially efficient proteins. In cheeses, therefore, these proteins assume an even more important place quantitatively. The proteins of milk and cheeses are particularly valuable for supplementing the proteins of cereal grains.

The vegetable proteins, as typified in dried legumes, though somewhat less efficient than animal proteins, show a general similarity to the proteins of meat and fish. In the main, nuts closely resemble meats in composition.

The Body Needs Proteins

Growth is one important sign of good health during childhood; and proteins are essential to the increase in size of muscle tissues, which is one form of growth. Therefore unless adequate amounts of good proteins are supplied regularly in foods, growth is unsatisfactory. Proteins are also needed after the growth period for there continues to be "wear and tear" on the muscles throughout life.

In addition to supplying actual building materials, protein foods are important in the diet for the flavor, variety and satisfaction which they lend to meals. It will be noted from the list of protein foods given that these are the foods which classify as "main dishes" and therefore are depended on to lend character and interest to our meals.

Use of Flesh Foods

Expenditure for meat, fish and poultry in the United States makes up from one fourth to one third of our total expenditure for food, and the meat packing industry is one of the most important branches of the food industry in money value of the product. Slaughter of beef has become largely concentrated in Chicago, especially since the development of refrigerated transportation. The average shipping distance for dressed beef is 1,000 miles. By-products of meat which are important in the diet are lard and gelatin.

Fish and fish products are becoming increasingly important, about nine tenths of our total supply coming from the North Atlantic and the North Pacific. The estimated average per capita consumption of fish in the United States is about 15 pounds yearly. Fish is a very perishable food. (Further information about this important grouping of foods may be obtained by pupils.)

Application to the Classroom

Children of all ages can enjoy testing for proteins in foods, for of the two commonest methods of making the tests, one is simple and the other more difficult, involving greater experience. Both will intrigue the students in any classroom. The simpler experiment is suggested first.

Experiment with Protein (1)

Problem

To test foods for protein by burning.

Materials

Egg white (cooked)
Meat (raw)
American cheese
Cottage cheese
Sugar
Corn starch
Flour
Dissecting needle or forceps
Bunsen burner or other flame
Tripod
Asbestos sheeting or sheet iron

Fifth Experiment

Using either the dissecting needle or the forceps, burn a small piece of meat in the flame. Notice whether there is an odor of burned feathers. The odor of burned feathers which results indicates that protein is present in the food. Burn small pieces of cooked egg white and American cheese in the same way. Rest the piece of asbestos sheeting or sheet iron on the tripod. Now burn each of the other foods by placing about one-

half teaspoonful of each on the asbestos sheeting or the sheet iron. Notice in each case whether there is an odor of burned feathers.

Results

An odor of burned feathers results when egg white, meat, American cheese, cottage cheese and flour are burned, indicating that these foods contain protein. Sugar and corn starch do not give off such an odor when burned and therefore contain no protein.

Conclusions

A simple test for protein is to burn the food. If an odor of burned feathers is given off, the food contains protein.

Application to Upper Grades

The experiment which follows requires the handling of nitric acid, which should not be entrusted to younger children. Students in the upper grades or a teacher should demonstrate this experiment to classes in the lower grades if it seems desirable for them to see it.

Experiment with Protein (2)

Problem

To test for protein with nitric acid and ammonium hydroxide.

Materials

Egg white (cooked)
Meat (raw)
American cheese
Cottage cheese
Sugar
Corn starch
Flour
Test tubes
Bunsen burner or other flame
Nitric acid
Ammonium hydroxide
Dropper

Sixth Experiment

Place about 1 teaspoonful of chopped egg white in a test tube. Fill the tube about one-third full of water. Add 10 drops of nitric acid. Heat the tube gently. Now add 20 drops of ammonium hydroxide to the heated mixture in the tube. The orange color which results indicates that the food tested contains protein. Now test each of the other foods in the same way. Watch carefully to see in which cases an orange color results.

Results

An orange color forms when egg white, meat, American cheese, cottage cheese and flour are tested with nitric acid and ammonium hydroxide, indicating that these foods contain protein. Sugar and corn starch do not give this test for protein.

Conclusions

If an orange color forms when foods are tested with nitric acid and ammonium hydroxide, protein is present.

An interesting supplement to this experiment is to test the curd (protein) of milk after it has been precipitated from the milk with hydrochloric acid. To precipitate the curd, the acid is added drop by drop into the milk while the milk is being stirred. The curds which are separated from the milk are like those formed in making cottage cheese. The curds may be tested for protein with nitric acid and ammonium hydroxide after they have been removed from the liquid by draining off the liquid through cheesecloth or a fine sieve.

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Little Journeys Among High Schools: III

Meeting Individual Needs Through Health Guidance

JEAN V. LATIMER
Coordinator of Health Education
Division of Child Hygiene
Massachusetts Department of Public Health

Again we are privileged to accompany Miss Latimer on her journeys among the high schools. Her story this month is of absorbing interest. It concerns the problem of guiding each pupil so that he acquires the information and learns the habits and attitudes that he himself most needs to be healthy.

TODAY there are signs, especially in the high school, that the school health program is not only taking into consideration, but actually meeting, individual pupil health needs. This has come about possibly as a reflection of the general educational recognition that each pupil is a distinct personality, different from every other pupil, not only as to innate physical and mental capacities but in his home, community and school life.

In my visits to high schools I have found that each locality has more or less its own organization and ways of giving health guidance.

In one high school, where the physical educational program had become individualized, the school medical examiner was making a close observation of Mary Jones while examining her actual physical condition. I noted him discussing with her her health status, as to both her strength and her weakness. Mary was a tall, angular girl, evidently quite overgrown. I asked the school nurse, who was assisting in the examination, about this girl.

The nurse replied that the physical education instructor was questioning whether or not Mary should be so strenuous in the school sports, especially in basketball. It seems that Mary's medical history showed a family history of tuberculosis. It was evident that Mary possibly needed more rest during the school day than was allowed by her present full program of school activities.

With the school nurse's assistance the doctor made notations on Mary's record card, and the matter was thus referred to her physical education instructor, to her classroom teacher and to the dean of girls. Each in turn made an educational contribution to the health guidance of Mary.

Because I was especially interested, on my next visit to this town I asked about Mary. For some months, Mary had been reporting each day to the physical education department for half an hour's rest. She had given up basketball but had found an outlet for her ability and interest in a less strenuous activity, editing the school paper. In June, Mary graduated and will enter college next fall in a good physical condition.

In a small high school in a rural district, a recent survey had shown that Tom Brown's teeth needed attention.

This was a small school system in which there was not even a full time school nurse. Here it was the responsibility of an organized group of teachers called the Health Council to help in coordinating the local health program. This council had made a study of the community resources available for the correction of dental defects. Through this council, Tom was put in contact with a dentist in a nearby city who would make the corrections at the least possible expense.

The boy was also referred to a local agency which would help to meet the cost. I even found that the superintendent himself often drove Tom to the nearby city in the late afternoon when he had appointments with this dentist.

In 1929 it was my privilege to assist in starting a health council in a high school in a large industrial city. During the past winter I happened in on a meeting of this council to find them conducting a lively discussion of how Ruth Johnson's program could be adjusted so that there would not be so much going up and down stairs during the school day.

Ruth had been ill with an attack of pneumonia which had weakened an already not-too-strong heart. An active member of this Health Council was also the head of the guidance work in the high school. After a few minutes' discussion it was possible to make an adjustment

in Ruth's program of studies which would enable her to expend less physical energy but at the same time meet her academic requirements.

In another high school I found the following interesting development: During the fall term, as a follow-up on the school medical examinations, the physical education instructors conducted individual pupil health conferences instead of classroom health instruction periods. At this time health appraisals were made, and provisions were afforded for adjustments in line with the individual needs and capacities discovered.

During the second term, not only were these boys and girls engaging in physical education activities, but there was organized health instruction in groups of not more than thirty. The course was conducted on a problem basis, based on the actual health interests and needs discovered during the fall term.

In another high school I found the physical education instructors for both boys and girls concerned not so much with competitive athletics as in providing such a wide variety of sports that each pupil could find something which suited him. I saw a class in simple dancing given to a group of so-called awkward high school girls who, according to the instructor, had not the ability to excel in the more involved folk dancing.

It has often been said that the classroom teacher should be the center of the school health program. Therefore I was on the lookout to see how the homeroom teacher really functions in making her contribution to the health of her pupils. Certainly the homeroom teacher is in a strategic position for observing the beginning of many physical and emotional difficulties.

Recently I talked with a homeroom teacher who appeared to be ever watchful of the health of her pupils. I found that just that month she had referred to the school nurse the case of a nervous, frail girl who, along with other nervous symptoms, had the habit of nail biting.

She also told me of the case of a boy who had been absent from school too often during the past term. He had given the following reason, "I have colds every year, and when they come in the winter time they always last a long time." The boy's school examination record showed chronically enlarged tonsils. His health habit record showed a lack of fresh vegetables and fruit in his daily diet.

The teacher had referred the matter for investigation to the school nurse, who had discovered that the family budget gave little consideration to such important food elements as milk and green vegetables. Not only was the mother given nutritional advice, but after much persuasion she agreed to have the boy's tonsils removed during the summer months.

On a visit to the high school in a large suburban city, I was taken into the personnel office and shown the cumulative records kept for each pupil. On these cards what did I find about health? Glancing down the card I noticed spaces given to the following: summary of physical conditions; signs of health as observed by the classroom teacher; health behavior, and interviews with parents regarding health. Also, notations had been made as to health improvement.

These are illustrations of how certain high schools are using their resources in helping boys and girls to develop the best possible health by helping themselves and by providing a physical and social atmosphere conducive to the broadest development of health.

USE OF BRUSH AND DENTIFRICE IN THE MORNING BEFORE SCHOOL IS EMPHASIZED IN BERTHA STREETER'S ARTICLE.

Doris Day

A Practical School Health Campaign

BERTHA STREETER

Miss Streeter is a free-lance writer with a keen interest in school health problems. From time to time she interviews school authorities and writes articles about the high points in their achievements. In the following article she tells about a campaign for dental health in South Carolina.

"CHILDREN handle many objects in common when they go to school, and in many instances they eat lunch without thoroughly washing their hands," says Dr. P. D. Brooker, director of dental health for the South Carolina Board of Health. "In every classroom a large number have dental caries, commonly called 'tooth decay,' in various stages of the disease. Many mouths are a holocaust of decayed, rotting and abscessed teeth. With other children, daily home cleaning of teeth is cursory as a rule, or entirely neglected. All these offer a prolific field for disease germs.

"Most germs of disease are carried to the lips, thence inside the mouth to areas having no defensive mechanism against bacteria. The germs colonize and multiply at the gum edges around the necks of the teeth and between the teeth in direct ratio to the amount of uncleanness present to sustain and foster them. Constant cleanliness of the mouth is the only practical and effective defense against this highly septic condition."

A state survey showed that "by the time children are five years old, about 96 per cent who are not under preventive treatment have tooth decay, two thirds of them being so seriously affected that the poisons generated by the disease have already entered the system."

It was through the schools that Dr. Brooker started his campaign against these conditions. He drove

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TO AMERICA'S SCHOOLS *Your Health!*

Following is the schedule of programs for November in the radio network series "Your Health," broadcast by the American Medical Association and the National Broadcasting Company over the Blue network each Wednesday at 2 p. m., eastern standard time (1 p. m., central time; 12 noon, mountain time; 11 a. m., Pacific time).

All schools are invited to make use of the broadcasts by tuning in on the program, correlating it with class instruction in health and, if desired, accompanying it with the use of the workbook "Your Health" written especially for this purpose by W. W. Bauer, M.D., and Paul A. Teschner, M.D., and published by the Johnson Publishing Company, Richmond, Va.

HOW TO LIVE

November 16.—Healthful Play: Health values and hazards in sports and recreation, including football.

November 23.—Weather and Wearing Apparel: Ventilation; clothing; bathing.

November 30.—Rest, Relaxation and Recreation: All work and no play, or all play and no rest—bad for health.

December 7.—Tuberculosis and the Teens: How bad habits of hygiene and unwise living, plus infection, favor tuberculosis.

The group of topics selected for November follows logically on the October group, which had to do with factors in growth and the so-called physical defects which develop when the body is neglected. As October's program dealt with tonsils, adenoids, decayed teeth, vision and hearing defects and other conditions which interfere with efficiency and enjoyment of life, so November's programs deal with wise use of the body in everyday living; and because December is Christmas seal month for the antituberculosis societies, the subject of tuberculosis is scheduled in this group. There is another reason why tuberculosis falls logically into place in this group, and that is the close relationship between hygiene and tuberculosis.

The healthy body requires play and relaxation. Modern attitudes toward play indicate that play is primarily for fun but that it has values much greater than fun. The days when regimented calisthenics and gymnastic sports were the whole story of physical education have gone. Today physical education is based much on purposeful play, beginning with simple games for little children up to the most complicated of competitive sports. The benefits which arise from physical education are not alone the benefits of exercise but include bodily coordination, graceful efficiency, strength, skill at games and for emergencies and an improved sense of well-being. Exercise is not a cure-all, and it can be overdone. Today a part of physical education includes rest for those who need it, as well as exercise for those who require it. Finally, there is danger in exercise and games when they are overdone. Too much play, especially of certain fast games like basketball, tennis and handball, or hard physical contests like football, boxing and wrestling, can do great physical harm.

Ventilation, clothing and bathing are closely concerned with the well-being of the human skin, and the skin has a great influence on the health of the body. The skin is not only a covering but a heat regulator, an organ of sensation and to a limited extent an organ of waste elimination. The health of the skin, as well as the general bodily welfare, demands fresh, cool, moving air. This does not mean that cold places and drafts are evidence of good ventilation—quite the contrary. Fresh air need not be cold air. Clothing should be light, loose and regulated by temperature rather than by season or fashion. The most sensible clothing plan is one which includes light clothing for indoors and additional heavy clothing for outdoors. Outdoor workers, of course, should dress heavily enough to protect themselves.

Bathing is for cleanliness, primarily. This requires the use of hot water and soap as often as necessary; but there is no hard and fast schedule. Some persons with dry skins must bathe seldom and substitute cleansing creams for soap and water wherever possible.

Rest and relaxation are closely related to play; but not all relaxation is play, and play may not be relaxation at all. In a busy life there must be some time in each day, or at least each week, during which there are no obligations and the individual may do what he pleases or do nothing at all. In addition, it is wise whenever possible to rest before and immediately after meals. The amount of sleep required by different persons is variable. Some can get along with little; others require more. In youth especially, it is important to get enough sleep to be thoroughly rested. Individual experience is a safe guide, unless there is unusual fatigue without apparently adequate

Stephen Deutch

WHILE NO HARD AND FAST SCHEDULE CAN BE OFFERED, BATHING IS MAINLY FOR CLEANLINESS AND SO REQUIRES THE USE OF SOAP AND HOT WATER AS OFTEN AS THE INDIVIDUAL NEEDS IT.

cause. In such a case, a physician should be consulted promptly.

Unwise living, together with opportunity for infection with the tubercle bacillus, brings about the likelihood of tuberculous infection or tuberculous disease. For details about tuberculosis, users of the radio program "Your Health" are referred to the numerous articles on this subject which have appeared in HYGEIA within the past three years and especially to the recent series by Dr. B. P. Potter, published in HYGEIA from April through November 1938.

More detailed information useful in relation to these radio programs, and especially the November group of broadcasts, will be found in HYGEIA for November 1937. Because most schools have files of HYGEIA, these extensive basic briefs are not being reprinted in full this year.

THE APPLE OF SLEEP (Continued from page 994)

to consciousness and begin to struggle anew.

By the standards of the past the surgeons of today daily perform the impossible; and what lies in the womb of the surgery of tomorrow, none can tell.

To the patient of today the operation is the one thing of which he need have no knowledge. No matter what hidden recesses must be uncovered, no matter how complicated the procedures made necessary by his condition, for him they do not exist. Young or old, strong or weak, for him pain is no longer a menace, for no matter what must be done or on whom or under what circumstances, there is a method of anesthesia applicable to the purpose.

Pain is a sensation conveyed to the central nervous system by means of the sensory nerves of the parts affected. Anesthesia, therefore, necessitates putting these pathways of sensory transmission temporarily out of order.

The early methods of anesthesia were directed toward the receiving center, the brain, and abolished pain by rendering the receiving center unable to receive and interpret the sensations conveyed to it. It was inevitable that early methods of anesthesia should change, develop and advance, not only because those originally used were crude and in some respects more or less dangerous but also because they were not applicable to all situations and all circumstances.

The patient 70 years old, for example, the patient who has some infection of the upper respiratory tract, the patient with tuberculosis, the infant, the pregnant woman, all these may have to be operated on, but not all of them can be safely anesthetized—not by the methods of old. For these situations, not only have various substances been discovered for use as anesthetics, but new methods by which they may be utilized have been devised so that there are now available local anesthesia, nerve block anesthesia and spinal anesthesia as well as anesthesia by inhalation.

Purely local anesthesia is that by which only a selected area is rendered insensitive by the local application of drugs capable of paralyzing sensory nerves. Familiar examples of this type of anesthesia are the injections into the gums by which the extraction of teeth is made painless, or the instillation of anesthetic solutions into the eye for the removal of foreign bodies or even for operations on the eye. In order that such methods may be effective it is essential that the solutions be applied to a surface possessing the ability to absorb them.

In local anesthesia there is no interference with the central receiving station, but impulses do not reach it because the sensory nerves through which they should be transported are paralyzed.

If the region to be anesthetized is not capable of absorbing the anesthetic agent, this is then introduced into the tissues by injection, the tissues being infiltrated with the anesthetizing agent in solution which is thus brought into contact with the sensory nerve endings of the area. For very minor procedures and where the anesthesia need not be maintained for more than short periods, cold may be used, in keeping with the observations of Larrey, the part in question being frozen for a short time and the sensory nerves thus prevented from carrying out their function.

The necessary degree of cold either by spraying the part with highly volatile liquids which, through their extremely rapid evaporation freeze the part, or by means of the application of carbon dioxide gas which escaping under great pressure rapidly becomes a solid. This is the familiar "dry ice" of commerce.

When the area to be anesthetized is large, to secure this by injection would be a tedious procedure. In such cases the physician may resort to what has been termed "nerve blocking." Nerve block is attained by making the injections directly into the main nerve trunk supplying the area and is so called because the effect of the drug on the nerve is to block the transfer of sensory impulses. In this case it is the nerve which is treated rather than the tissues; but because it is out of order the sensations reaching it from the smaller nerve endings of the area cannot be transmitted to the brain and hence are not appreciated as pain.

While nerve blocking can be and has been used for rather extensive surgical procedures, until comparatively recent times it was not applicable to major operations such as those involving the abdominal organs. However, this can now be achieved with safety and much benefit to both patient and surgeon by the injection of the anesthetizing solution directly into the spinal canal. This is known as spinal anesthesia.

The spinal canal is the main conduit in which lies the spinal cord, which is, so to speak, the main cable carrying the nerve impulses from the body at large. As the sensory nerve endings in the outlying tissues approach the center they join and form larger and larger nerve trunks, which are finally gathered together in the spinal cord, the communication cable of the body. In order to protect this sensitive and important structure from damage, it is enclosed in a bony framework, the spinal column, and still further cushioned by a surrounding layer of watery fluid, the spinal fluid. It would be a difficult matter, even if it were desirable and without danger, to inject anesthetizing solutions directly into the fibers of the spinal cord. But they can be injected into the fluid surrounding the cord and thus exert their effects on it without harm.

For this purpose, the skin and subcutaneous tissues having been anesthetized, a fine needle is inserted between the spinal vertebrae in the region of "the small of the back." A small amount of spinal fluid is allowed to escape and is collected, the drug to be used dissolved in it and this now medicated spinal fluid reinjected and so brought into contact with the spinal cord. Within a relatively short time the sensory fibers in the spinal cord, and the motor fibers as well, are paralyzed and the patient is without sensation and unable to move the lower portion of the body, because the ability of the master cable to transmit impulses has been lost for the time being.

Normal spinal fluid has a specific gravity very nearly that of water. When substances are dissolved in it the spinal fluid gravity is increased, and the heavier fluid tends to seek the lower levels. Because of this fact and because the various main nerve trunks enter and leave the spinal cord at varying levels, it is possible to regulate the level to which spinal anesthesia shall be applied by tilting the operating table. As the patient's head is lowered the medicated fluid flows upward and mixes with the fluid above it, thus extending the anesthetic action to higher and higher levels. However there is a distinct level beyond which spinal anesthesia cannot be carried. It must not be allowed to reach above the diaphragm because it would then affect the function of important nerve centers related to respiration and the action of the heart, with results easily imagined. It can be used, however, for major abdominal operations and is so satisfactory and, in skilled and competent hands, so safe that many surgeons use it for almost all their work.

(Continued on page 1047)

Child Guidance Procedures

By Institute for Juvenile Research. Cloth. Price, $2.50. Pp. 358. New York: D. Appleton-Century Company, 1937.

THIS book is the result of the combined efforts of the members of the staff of the Institute for Juvenile Research, Chicago, to arrange a summary and outline of the procedures and technics of child guidance which have been found most useful in the work at the institute.

The five sections into which the book is divided are grouped according to different aspects of the problems of guidance work.

The book covers a wide range of typical clinical problems and is successful in presenting concisely an account of the functioning of the institute. It is especially well designed to meet the needs of parents, social workers, physicians or other persons who may wish to know what facilities are available for children who need these particular forms of service. A good bibliography is appended.

E. R. EISLER, M.D.

What Everyone Should Know About Venereal Diseases

By Earl R. Millis, M.D. Second and third editions. Paper. Price, 25 cents each. Pp. 31. Kansas City, Kan.: C. R. Baker Company, 1937.

THE second and third editions of this booklet are identical in every essential except format. The second edition appears in a vivid red and yellow cover; the third is a much smaller pamphlet printed cheaply in small type and with self cover. The second edition is more readable than the third, because of the larger page sizes and better typography; the third is perhaps more suitable for those who might not wish to be observed reading the more flamboyantly dressed second edition. Despite modern frankness about venereal diseases, there are still those who cling to traditional reticence on these subjects. Either edition will "give the public the true facts regarding the venereal diseases and their complications," the author's objective.

Some physicians will undoubtedly object to telling the patient as much as this booklet tells about complications and treatment, but in this difficult field it seems to be justified. As stated in the review of the first edition in the *Journal* of the American Medical Association, March 14, 1936, "The medical profession would be doing the public a great service by finding and developing new avenues of distribution for such important facts." Since that recommendation was made, two national Social Hygiene days have been held and money has been raised for syphilis education. Such pamphlets as this might be useful in that campaign.

W. W. BAUER, M.D.

Stephen Deutch

"CHILD GUIDANCE PROCEDURES" COVERS A WIDE RANGE OF TYPICAL CLINICAL PROBLEMS AND OUTLINES CORRECTIVE PROCEDURES.

NEW BOOKS on HEALTH

How to Drive

Price, 25 cents. Pp. 99. Illustrated. Washington, D. C.: American Automobile Association, 1937.

AT A TIME when so many high schools are introducing courses on automobile driving there is need for good books of instruction for teachers and pupils. "How to Drive" is designed as a textbook. It is the outgrowth of five years of development based on the experience of Prof. Amos E. Neyhart of the Pennsylvania State College. It is simple and direct without being childish. The reader gets an insight into the mechanism of a car and the principles and details of its control. At the end of each chapter there is a list of discussion topics, projects and a carefully chosen bibliography. The numerous illustrations are helpful.

Not only the beginner but the more experienced driver would profit from reading this book. For example, under a section entitled "Economies at Moderate Speeds" we find some information that should be novel and helpful to many drivers. It deals with speed which is responsible for so many accidents as well as the wasting of money. It reads as follows:

"Any driver who exercises extra care in everyday driving can increase his 'miles per gallon' to a surprising degree. It requires about 50% more gasoline to average 60 miles per hour than to average 40 miles per hour. But savings are not limited to gasoline alone. Studies made at Iowa State College indicate that tire wear at 52 miles per hour is 2.7 times as great as it is at 33 miles per hour. Moderation in driving speed also reduces oil consumption materially and increases the life of brake linings."

J. MACE ANDRESS.

Condition Satisfactory

By Sandor Puder. Cloth. Price, $2. Pp. 201. New York: Alfred A. Knopf, 1937.

IN THIS book a young physician recounts his subjective experiences during a severe illness, operations and recovery. He vividly portrays his feelings and fears in a highly emotional manner. One gathers from the book the emotional instability of the writer; but aside from this no great purpose is served. The author-physician himself has profited by his experiences for, as he states at the end, he has learned how helpful it is to say to an anxious mother, "condition satisfactory." ROY R. GRINKER, M.D.

Health in Colleges

Cloth. Pp. 112. New York: National Tuberculosis Association, 1937.

THIS publication contains the observations and recommendations of the various committees appointed to report to a second conference of delegates from educational institutions and other organizations interested in student health. This national conference on college hygiene was held in Washington, D. C., December 1936 under the auspices of the President's Committee of Fifty on College Hygiene, the National Health Council, the American Student Health Association and the National Tuberculosis Association.

The keynote of the conference was to encourage cooperation among the various persons and agencies concerned with the health of students to the end that a better student health service might be developed. In regard to the medical profession, it was recommended that "college hygiene and organized medicine should be parts of the same integrating societal health program." Throughout the many recommendations and conclusions of the committees there is a noticeable change of attitude toward the relations between student health services and the medical profession.

Formerly, considerable support was given to the belief that the college should place increased emphasis on the treatment and management of illnesses among students and that the student health service should be a means of developing a community health center for the care of the faculty, college employees and residents of the community as well as for students.

This position was taken in spite of the fact that the primary purpose of a student health service should be health education and that, since 1914, at least sixteen surveys of student health services have been unanimous in their criticism of the failure of colleges to raise the health educational level of their students. It is significant, therefore, that the present tendency is toward emphasis by the college on educational matters, with the arrangements for required curative medical services secured through the cooperation of local medical societies.

The observations of the conference, which are suggested as a "measuring rod" for student health services, recommend "correlation between the student health service and the neighboring organized medical and dental professions" and "no competition in the practice of medicine and dentistry between the full-time college staff and local private practitioners." They advocate that "staff physicians should hold membership in local and national medical societies and consistently attend their meetings," "staff members should not augment their private practice as a result of their connection with student health services," "actual medical or surgical correction should be secured through the family physician," "there should no attempt to choose a student's physician for him," and "surgical operations and other strictly clinical treatment of an extensive nature are not a primary function of the college." Other recommendations of interest are made concerning health teaching, mental hygiene, nutrition, social hygiene and tuberculosis.

J. D. LAUX.

Proceedings of the Forty-First Annual Meeting of the National Congress of Parents and Teachers

Vol. 41. Pp. 398. Washington, D. C.: National Congress of Parents and Teachers, 1937.

THE theme of this report is: "The place of the home in the community." This volume shows how much the home and school are striving to understand each other and work together. There are several excellent articles and reports relating to mental and physical health.

One of the highlights in this report is an address on "Youth in a Modern Community" by Dr. Homer P. Rainey, director of the American Youth Commission of the American Council on Education. Dr. Rainey told about the investigations in which 50,000 youths between 16 and 24 were interviewed with a carefully prepared schedule of some eighty or ninety questions. These interviews lasted from forty minutes to an hour and a half. The results of these studies are most illuminating in showing the needs of youth. The leading needs as expressed by the youth were how to get and hold a job, how to prepare for a happy and successful home life, how to develop a satisfying philosophy of life, how to work out a philosophy of government and one's relationship to it and the need of youth for guidance. Little is said by Dr. Rainey about the need of sound health training, if these needs of youth are to be satisfied; but the necessity for such training is evident.

J. M. A.

General Hygiene and Preventive Medicine

By John Weinzirl, M.S., Ph.D., Dr. P.H. Edited by Adolph Weinzirl. Pp. 424. Philadelphia: Lea & Febiger, 1937.

THE author states in the preface that so many volumes on hygiene are appearing that a new book should be able to justify its existence because of some unique contribution. He therefore offers this textbook with an essentially new point of view; namely, that of subordinating all the material on hygiene and medicine to the control of disease. It covers its field adequately. The style is simple and direct. The subject matter is well organized and practical in its application. This is obviously a textbook for college students, medical students and public health workers. It would be an excellent reference book for high school teachers who need to get a better understanding of the cause and control of diseases.

J. M. A.

Tuberculosis Problem

New York: National Tuberculosis Association.

THE National Tuberculosis Association has prepared a number of pamphlets on the great leaders in the movement against tuberculosis. Among these are Koch and Laënnec. This material is put up in an attractive envelop which makes it easy to keep the pamphlets together and put them on file. There are three envelops in the complete kit, which involves three approaches—the scientific, historical and statistical.

J. M. A.

Trends in Health Teaching in Village and Rural Schools

By Mary B. Rappaport. Pp. 20. Syracuse, N. Y.: Onondaga Health Association, 1937.

"HEALTH EDUCATION is marching on in New York State," says Miss Florence C. O'Neil, supervisor of health teaching, New York State Education Department, in the foreword of this pamphlet on health teaching. This is easy to believe if the work in Onondaga County is a good example. The statement of problems met and what is being done to solve them will be illuminating to all teachers not only in rural and village schools but also in city schools as well.

J. M. A.

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[NOTE.—Books reviewed or mentioned in this section, other than those published by the American Medical Association, should be ordered from booksellers or direct from the publishers. They may not be ordered through HYGEIA or the American Medical Association.]

Ewing Galloway

ALTHOUGH SHE CAN READ FAIRLY WELL, SHE CANNOT DISTINGUISH THINGS AT A DISTANCE. HER DOCTORS SAY SHE HAS A CATARACT FORMING. WILL THE DRUGS THEY PRESCRIBED RETARD ITS GROWTH?

QUESTIONS and ANSWERS

Cataract

To the Editor:—My wife is 78 years of age and has worn bifocal glasses for five years. With them she can read fairly well, but she cannot see things well at a distance. She went to an eye physician who reported signs of cataract not far advanced. Another eye physician who was consulted also recorded signs of cataract. Have drugs any value in retarding the growth of cataract?

J. T., California.

Answer.—There are many forms of medical treatment aimed to arrest the development of cataract, and for each form of treatment the discoverer claims results that vary from "slight improvement" to "complete cure." Some few years ago, the American Medical Association appointed a committee of eye physicians to investigate the legitimate so-called cures of cataract. Interestingly enough, the committee found that each doctor who had reported a new treatment cited many cases of cure or arrest of cataract; but no other physician was ever able to corroborate the statistics. This, coupled with the knowledge that many cases of cataract become arrested spontaneously or even retrogress without treatment, forced the committee to the conclusion that "There is no medical treatment of senile cataract of proved efficacy."

Numerous drugs have been used for many years in the hope of arresting senile cataract. There are no photographically proved cases to demonstrate that any has been of value.

Destruction of Tubercle Bacillus by Intense Light

To the Editor:—What work or research has been done to destroy tubercle bacilli within the body by use of intense light?

C. R. L., Pennsylvania.

Answer.—As early as 1877, observations were made on the action of light in the destruction of bacteria. The workers, Downes and Blunt, found that short wavelength rays, including ultraviolet, had the bactericidal action. The destructive effect is due to direct photochemical action on the protoplasm, which is coagulated by the short rays. In destroying bacteria, yellow, red and infra-red rays have almost no effect, but the ultraviolet rays have a powerful action. It is these rays from the natural sunlight which are largely responsible for the control of bacterial growth on the earth. They destroy bacteria in the water of streams, rivers and lakes as well as in food, such as milk, and the air we breathe. These rays may be produced artificially by especially constructed lamps and therefore may be applied as bactericidal agents in places not ordinarily reached by natural sunlight.

Mayer was able to kill tubercle bacilli in thin suspension in fifteen minutes by exposing them to a mercury quartz light. Bank found all tubercle bacilli dead which in a thin layer had been exposed for six seconds to a carbon arc light of 30 amperes at a distance of 30 cm. The use of such lights is being thoroughly investigated with reference to their germicidal action on tubercle bacilli in the air and on the floors and contents of rooms in tuberculosis clinics and hospitals.

The action of light on tubercle bacilli in the body has been studied extensively. Finsen and Siegert administered light in cases of tuberculosis of the skin. While some of the tubercle bacilli were killed, others remained alive. The difficulty lies in the fact that the ultraviolet rays, which are germicidal, do not penetrate deeply, and the rays which have deeper penetrating power are not germicidal. Since not all tubercle bacilli in skin lesions can be killed by light, it seems hopeless to attempt to destroy those which occupy tissues more remote from the body's surface. While sunlight, both natural and artificial, has been shown to have a valuable effect on the treatment of some forms of tuberculosis located beneath the skin, it is not because of the bactericidal action of the ultraviolet rays.

The x-rays have been used extensively in the treatment of some forms of tuberculosis; but even here the beneficial effects that have been reported are not due to a direct bactericidal action on the tubercle bacilli. Probably the action of the x-rays is limited to stimulation of the tissues, resulting in a more rapid development of scar tissue, which walls off the foci of bacilli.

X-Rays and Radium in Treatment of Cancer

To the Editor:—Will you give me information dealing with specific wavelengths of x-rays or gamma rays affecting cancerous tissue?

C. F. J., Wisconsin.

Answer.—A large amount of experimental work has been done on the relationship of specific wavelengths of x-rays and of gamma rays from radium to their destructive effects on cancer tissue. It has been definitely shown that there is no difference in the effects of the different wavelengths of radiations on individual cells, the application of the radiation being made to the cells under such conditions that they are suspended free in air, so that there is no scatter from any surrounding material. These experiments have also been extended to radium, and as far as it is possible to measure the dose of radium in roentgens, there seems to be no difference.

The effect of both x-rays and gamma rays of radium on the tissues is not due to the ray itself or its quality but to the number of electrons set free in the tissue. The standard unit for the measurement of x-rays and gamma rays is the r, which is a measure of the number of electrons set free in a given volume of air under strictly specified conditions. As the destructive effects on cancer cells or normal cells is due wholly to the number of electrons set free in the tissues, the roentgen unit measures the biologic effect, as it also is a measure of the electrons set free in air.

When a mass of tissue is x-rayed the individual cell is presumably killed exactly as when it is suspended free in air, but this cannot be proved because at present there are no accurate measurements available of exactly what the ionization is in any part of a solid tissue. Under such conditions the radiation undergoes scattering of various types and the amount of radiation at any given place in the tissues may vary greatly with the wavelength and the radiation portal.

Again, in the treatment of tissues another factor enters which does not occur with isolated cells without circulation; that is, there is a continuous repair of the cells going on during radiation. Hence accurate measurements of the effects on a given block of tissue are not available at present. Considerable differences have been noted between the clinical effects of the action on tumors of x-rays and radium, usually to the benefit of radium; but if the rate of giving of the x-rays is exactly the same as that of radium, both being measured in r units, no differences can be observed. This means, however, an impractical prolongation of the x-ray treatment, because, as is well known, radium applications frequently extend from two or three hours to periods of days, a method of treatment obviously not possible with x-rays. But when the x-rays are given at about the same rate as a pack (at the usual distance employed, a 4 gram radium pack gives off about 4 or 5 r per minute) no difference in clinical effect can be observed. This very slow and prolonged giving of x-rays is known as the Coutard method and is now being generally adopted as the best form of treatment of malignant growths. With x-rays, to give 200 r at 4 r a minute takes about fifty minutes, which is as long as the average patient will stand. But the results seem to be just as good as with radium, especially if voltages up to 1 million are used, in which case the radiations are nearly the same wavelength as gamma rays. In other words, when the time factor is taken in consideration and the treatments are given under similar conditions, no clinical differences can be noted between the two agents.

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.

Growths and Birthmarks in Relation to Nervous Diseases

To the Editor:—While bathing patients in a hospital for nervous and mental cases, I observed that a large percentage had cysts, wens, tumors and birthmarks. In a general hospital, these things did not seem nearly so numerous. Are growths recognized as a factor in nervous diseases?

F. R., Oklahoma.

Answer.—The occurrence of various tumors and other abnormalities of the skin is not recognized as a part of most nervous and mental diseases. One peculiar disturbance of the central nervous system is characterized, in part, by tumor formations usually arising from the sheaths of the peripheral nerves. These appear as multiple, soft or firm masses within or beneath the skin in any locality and usually can be moved perpendicular to but not parallel with the nerve trunk from which they arise. They are frequently associated with pigmented areas of the skin. Infrequently, certain types of tumors arising from the walls of blood vessels have cutaneous manifestations as well as symptoms connected with the central nervous system.

Sebaceous cysts and wens are single or multiple, soft or firm, roundish tumors situated in or beneath the skin usually in the region of the head, trunk or genitals. They vary in size and are usually symptomless. They may result from skin neglect in that the ducts of the oil (sebaceous) glands are allowed to become plugged with resulting retention of secretions. On the other hand, they may develop as a result of some abnormality of the gland itself. Commonly, fatty tumors are noted in the subcutaneous tissue usually about the shoulders, buttocks and extremities. These also are not related to any particular state of ill health.

Retroversion of Uterus

To the Editor:—Can ovarian cysts cause retroversion of the uterus? With the exception of surgery, is there any other cure for retroversion? Can the uterus become displaced again after it has been suspended a second time? What causes this displacement?

S. F., Massachusetts.

Answer.—If an ovarian cyst should lie in front of a uterus, it might produce a retroversion. Cysts are however usually to the side of or behind the uterus.

Sometimes a pessary will hold the uterus up, and in due time the uterus may remain in its proper position. Usually, however, a surgical operation will give the best result. If a retroversion gives no symptoms it is probably wise to do nothing.

A satisfactory operation for retroversion is shortening of the round ligaments. Some elastic has excellent contractile strength. Other elastic, when once stretched, may remain stretched. The same principle applies to round ligaments. Some contract well; others, when stretched, remain so. In such cases a second suspension may occasionally be followed by retroversion, particularly if a pregnancy has taken place since the operation.

Backward displacement may follow a fall or a sudden jumping. Sometimes it appears to occur in susceptible individuals after too much horseback riding. Now and then, after pregnancy, the large, boggy uterus drops back of its own weight and remains there. Each case must be determined by itself for the cause responsible.

EXTRAVERT or INTROVERT?

(Continued from page 973)

outgrown spontaneously and should not cause anxiety to parents. In dealing with the markedly introvert child, some of the more important considerations are the following:

1. Give him plenty of physical training, early and consistently. By nature his coordinations will probably be none too good. Abundant exercise will improve these and will increase his fitness, mentally as well as physically. Outdoor life will also prevent him from withdrawing into himself too much and will throw him with other people. Competitive sports may not be best suited to him, but hiking, swimming, dancing, boating, horseback riding and similar activities will be invaluable.

2. Enlarge his interest in his environment. The introvert is a bit too apt to have a one-track mind. This is vocationally an element of strength. He will become a specialist—one of those fellows who "knows more and more about less and less." But his specialization should not be too great during childhood. The parents must continually try to bring new interests within his horizon in order that he may keep his breadth and balance, that he may not form the habit of brooding too much over a few interests or over himself.

3. Every effort must be made to get the child reasonably socialized. He cannot keep up with the extravert's pace, but he must not be allowed to crawl into his shell and become a hermit or an appendix to his mother's apron strings. An introvert daughter offers a real problem as she goes into the high school age. Some mothers are so shortsighted as to be pleased by the girl's readiness to stay at home and amuse herself or "help mama." They feel that she is then not creating any problems for them, that they always know where she is, that she is at least keeping out of mischief. It is possible for a child to keep out of mischief too much! Continual but unobtrusive effort is required to see that the introvert joins enough clubs and organizations, has enough guests, attends enough parties, associates freely enough with those of her (or his) own age.

4. Promote full and free discussion in the family of all problems that might come into the child's area of interest. Remember that he is given to brooding over difficulties, is sometimes not very good at asking questions, is likely to become suspicious or fearful and that you must therefore take the initiative. Abundance of matter-of-fact information should be available to him continually, with a recognition on his part of your readiness to discuss it freely and without any more prejudice than is unavoidably inherent in human nature.

Sex is a matter of particular concern—virtually from infancy onward—in this connection, but it is by no means the only important subject. Your child is likely to be pondering a lot of things, such as the mysteries of life, death and immortality, the nature of God, the family's social position, budget or political views! The parents of a real introvert will have to go to a good deal of trouble to turn the home into an open forum, in order to get their offspring into the habit of discussing things freely and not letting doubts "stew in their own juice" within his mind.

This does not mean that the child should be continually "pumped"; or at least, if any pumping is done, it should be into, not out of, the youngster. Many a mother becomes greatly annoyed by the secretiveness of an introvert, which is more and more disconcerting to her at the adolescent period when her daughter, let us say, is beginning to do things that interest the mother enormously. The latter wants to live her own life over again in the daughter's activities, and she has a consuming curiosity about all the girl's feelings, her social affairs, her beaux.

The extravert is "a great comfort to her mother" in such affairs. Margaret comes home from the party, rushes into the house enthusiastically, throws her coat over a chair and her arms about her mother: "Oh, I had the most gorgeous time!" and then she pours out the details for an hour.

Marjorie, the introvert, has had just as good a time in her own less demonstrative way, but it isn't her nature to admit it. She comes home and says nothing.

"Well, how did the party go?" Mother inquires, half indignantly, half reproachfully.

"Oh, it was all right, I guess," Marjorie responds as she arranges her coat neatly on a hanger.

"Well, I think you might tell me a little about it. Who was there?"

"Oh, a lot of people."

And so it continues, Mother's balked curiosity making her more and more resentful, while her daughter grows correspondingly more and more resentful to think that she can have no privacy but must always be cross examined as if she were on the witness stand.

Mother will tell her friends of her exasperation and will assure herself that she is merely trying to be a good parent, that a good parent ought to have the child's full confidence and that if Marjorie won't give her the "confidence" she desires, it is evidence of a bad disposition.

You can't get along with an introvert that way!

(Continued on page 1048)

EXERCISE

(Continued from page 1008)

the most complete series of skeletons has been found in America. Before historic times, horses became extinct in North America and probably also in South America, to be reintroduced by the white man, which brings us up again to the early settlers from Europe.

Thus to staid, substantial New England, where one may not kiss one's wife on a Sunday, came staid and substantial horses, fit for pulling plows, hauling stoneboats with the endless crop of rocks for the stone walls and "snaking" logs out of the forests to make those enormous beams which may still be seen in the older houses. To the Southland, Virginia and Maryland, were brought thoroughbred sires to beget lighter horses with speed and personality, fit to carry on their backs elegant blade or comely lass, horse and rider mutually enhancing the charms of the other. Some of the latter were descended in direct line from one of those original bluebloods, The Darley Arabian, The Byerly Turk or the Godolphin Barb, which were the ancestors of the British thoroughbred; that is, a horse with a family tree of sufficient class so that he might be and was registered in the British stud book. Our own thoroughbreds are decendants, in the main, of these lines.

And so we began to have horses adapted to work, to transportation, to war and to sport. In this, as in other lands, these have been the chief uses of horses.

Every one is familiar, at least by hearsay, with work horses of several varieties: the brewer's big horses, draft horses, Percherons or Clydesdales, which are heavy, sleek, well kept and beautiful in a large way, and the farmer's horses, usually a sort of leftover with no family of any standing and no entrée into the society of the stock shows. I speak of the average farm horse. Of course, many farms possess draft and other horses of fine breeding, but in general, our farmers have paid much less attention to the breeding of their horses than to that of their hogs. Then there is the delivery horse used by the dairyman, the grocer and the junkman. Every one knows that the horse is being rapidly replaced by the motor. On farms in the West and Midwest and sometimes in the East, tractors pull the plows, harrows, drags and other farm equipment not intimately known to me. The beautiful, matched pairs which used to deliver your goods from the department store do so no more. The milkman, our earliest caller, has not yet found a motor car which will move along of its own volition or at a word from its master from your door to the next stop, as old Dobbin does; but fewer and fewer horses are attached to milk wagons, and our grandchildren may scarcely ever see them.

The work horse is giving way rapidly to the internal combustion engine which eats only when it works and which rarely runs away; and to the sentimentalist this evolution seems a bit regrettable, since next to man himself, the horse has had more influence on the march of empire and the advance (if it is advance) of civilization than any other creature.

For years and for centuries the horse was the only means of land transportation in many countries, other than man, carrying human passengers and freight. But the stage-coach in which the immortal Pickwick and Sam Weller traveled rolls no more on English roads. Occasionally the motorist driving through northern Indiana may see a whiskered Dunkard driving a horse hitched to an ancient buggy, and the motorist's child may say, "Oh, lookit, a horse and buggy." But the motorist's child's child may know such things by pictures only. The horse has nearly disappeared in this country as a means of transportation, and the young men of today who drive out with their best girls say that the gasoline roadster stands better than the equine.

Across the pages of history and across the steppes and pampas, the plains and deserts of the earth, for centuries on end, have swept groups and hordes of men on horses full panoplied for war; the Chinese of 2,000 B. C., the Bedouins and Cossaks and Touaregs. Across the pages of history and across the fields of Europe clanked and thundered the knights of the Age of Chivalry with corselet and hauberk, with shield and helmet, with battle ax and lance, and always astride steeds, noble steeds, steeds of spirit but large enough and strong enough to carry not only a rider but several hundred pounds of armor. Across these pages they have ridden and into the consciousness and hearts of generation after generation of youthful males.

Launcelot and Geraint and Galahad far antedated Frank Merriwell and were more colorful. Few boys have failed to respond to their glamor, to wish that they too could have ridden forth with lance and shield to win honor for the fair maids whose ribbons were on their arms, although it must be admitted that, at the age when most boys have read of the knights and their deeds of derring-do, the girl problem is but dimly on the far horizon. At any rate the knights had what every boy wants, strength and courage and skill at manly sports; and they had what every boy ought to want, courtesy to women, the instinct to protect the weak, and mercy to a vanquished foe; and they were where every boy wants to be, on the back of a good horse.

It is astonishing how a man on a horse excites comment. Ride on the bridle paths of your city, and note how grown men will lean from the windows of passing cars and bellow, "Ride him, cowboy!" and small boys call from the ground, "Gimme a ride, mister." Yes, there is something of interest and something of excitement and something of romance about a man on a horse. He has achieved a certain eminence.

Not only in the days before gunpowder was the man on horseback of military importance. In modern times the cavalry has been an arm of the service of great importance because of its mobility, its speed and effectiveness. An army with banners was good. An army with cavalry was better. Until recently the field artillery has been dependent on horses and has produced not only a grand marching song but grand military results. In military parades the horse units and the bands are the most thrilling and inspiring parts; and much of the glory of war, if it was glory, stems from the mounted troops, and we think of Forrest, of Sheridan, of Morgan. But from war, too, the horse has nearly passed.

For many centuries the horse has been used for sport as well as for work and war, and he has probably made his contribution to human happiness as long as he has been ridden at all. Here I refer not to racing, which has been favorably mentioned as the sport of kings but which today depends for its allure more on financial possibilities than what has been called sport for sport's sake. Rather I am thinking of riding as a sport for the rider, a means to health and happiness without regard to pure speed or competition. And there is reason to think that our children's children will not need to resort to books or museums in order to know what a horse looks like even though

(Continued on page 1049)

"What is wrong with the average Diet today?——— *Almost Everything!*"

(Statement by Dr. Alfred C. Jordan, Foreign Member of Belgian Royal Academy of Medicine)

Not everybody will agree that "almost everything" is wrong with our American diet. But authorities will agree that no matter how abundant the food, or how well balanced the diet, cooking plays an important part in the health program. When served, foods should provide the original vitamins in high degree. Vegetables and fruits should retain their natural colors. In order to accomplish this, authorities say that foods must not be overcooked, must not be boiled to death in water, and need ventilation at certain points in the cooking process.

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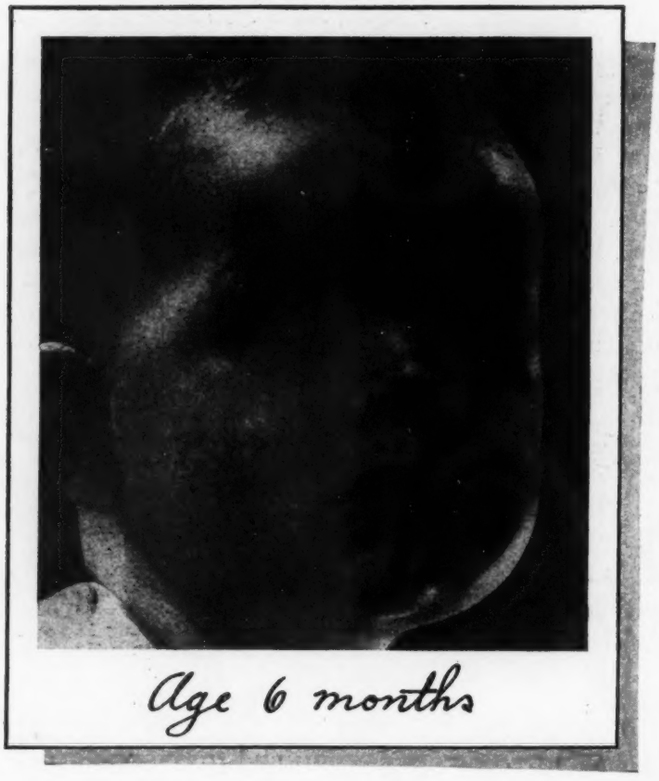

Age 6 months

DIPHTHERIA still strikes down children in many communities and families which have not provided the one sure and lasting defense against it—inoculation with toxin-antitoxin or toxoid. Diphtheria is almost entirely preventable. In only the rarest instances does a child, properly inoculated, ever have the disease.

When a child is six to nine months old he should be taken to a doctor for protection against diphtheria. The inoculation is simple and harmless. It gives lasting protection.

At birth a child usually has a natural immunity to diphtheria. But before his first birthday his natural immunity in most cases has worn off. Children between one and five years of age, if unprotected, are especially susceptible to diphtheria. But older children and, in rare instances, adults may contract the disease.

A generation ago diphtheria was far more common than it is today. Year after year it snuffed out the lives of tens of thousands of children and left many others with lasting injuries.

Diphtheria can be stamped out but the only way to do it is to protect all children against it. Unless this is done diphtheria will continue to be a threat.

Prejudice against inoculation causes some mothers to withhold this protection. Mothers must not make the mistake of thinking that, because the death rate from diphtheria has been reduced, their babies are protected without inoculation. Only when all children are inoculated before reaching nine months will the conquest of diphtheria be accomplished.

For more complete information about diphtheria and its prevention, send for our free booklet "Diphtheria." Address Booklet Department 1138-Z.

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PARASITE TRICKS

(Continued from page 1018)

stages. The characteristic mark that is generally stressed is the red mark on the under side, made up of two triangles to form a figure suggestive of an hour glass. The abdomen is quite rounded; hence the "shoe button" name. When the legs are spread out she is about an inch across, the body being somewhat over a quarter of an inch long. When the abdomen is distended with eggs the spider is considerably larger.

The male is much more slender; the markings are not so distinct, but he can be readily recognized by two little knobs at the front end, really the ends of the palpi. The life of the male is exceedingly precarious. As soon as he is fully grown he sets out to woo a mate—dangerous business in this case, for if he does not choose wisely he is pretty certain to pay for his mistake by being eaten up. He approaches the web where the lady is and shakes it. If a favorable response results, there is a return vibration, and mating follows. After the wedding the bride is likely to throw a web around the groom, and marital triangles are prevented by her devouring him then and there; hence her name, black widow. If she had been previously well fed he may escape; but usually his life is short, and he does not appear to amount to much.

The eggs are deposited in a silken sac, which when full may contain between 25 and 900. They are about a twenty-fifth of an inch long. A female may spin and fill from one to nine of these egg sacs a season.

After about three weeks at ordinary summer temperature the eggs hatch, but usually not all at once. There are generally some sterile eggs, and these appear to increase as the season advances. The little spiders do not at once leave the egg sac, for they must grow enough to shed the first skin before they can eat. So they loaf around several days when the weather is fine, and perhaps for a month, should it be cold; then they are likely to cluster on a web outside the sac. At this stage the weak ones have little chance for their life when hungry young spiders are cannibalistic, and the stronger ones have all the advantage. In this way, many disappear. They can produce webs about as soon as hatched; but these are too weak to hold many insects, and cannibalism is common among them. After a few weeks around their birthplace they start out, but mortality is high among them, as

older spiders of the same and other kinds find them choice morsels. But the mother spider has not been observed eating them. The number of molts varies; but generally it is five for the male and seven or eight for the female.

It takes about four months for the spider to mature, depending on temperature, food supply and other factors. Females that are hatched late in the season will pass the winter in the immature stage and continue maturity in the spring. The males practically always die before cold weather arrives. If the females have just reached maturity when cold weather arrives, they wait till the following spring before laying their eggs. Under natural conditions the life of the female is about a year or less, depending on when she started her existence. In the laboratory, females have lived nearly two years.

In the male the poison apparatus is practically undeveloped. Hence if he should bite, there would be no reaction. But with the female it is the large size of the poison sac and the amount of venom that makes her dangerous. She has the poison always with her; and when she has used it all up, it forms again rapidly. This poison seems to act directly on the nervous system, and the pain is extremely severe. In small animals, death is rapid. A tiny amount has killed a cat in ten minutes.

It is frequently difficult to get spiders to bite laboratory animals, but when this is accomplished with rats, severe symptoms follow at once. Most of the rats recover, for they seem to have considerable immunity to the poison, probably acquired in nature. If the same rats are used the second or third time, their symptoms are proportionately milder.

Even with all her venom the black widow is a timid creature and seeks dark places where she is not likely to be disturbed. While the bites are fatal to guinea pigs and serious to man, usually the spider will not bite unless she cannot escape. The effects on man are quite marked. Often the bite is not immediately felt, but soon after there may be a severe pain in the region of the bite. At any rate there is practically always a slight swelling with two tiny red spots in the center. Sometimes the pain is exceedingly severe. There may be spasms of the larger muscles of the body, particularly of those of the abdomen, and this has been mistaken for the spasm of appendicitis, though the pain on pressure is usually absent. There is also an increase in the white blood corpuscles as in appendicitis. Some-

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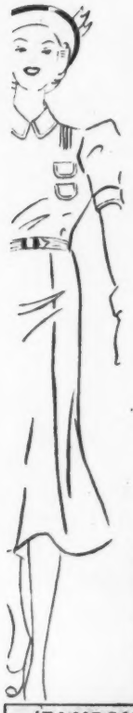

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times there is vomiting, which still further complicates the picture. There may be chills and fever.

An experimenter (Baerg) who allowed himself to be bitten on the finger speaks of the effects as follows:

> Referring briefly to some of the general effects of the case, I would say that the sharp pain in the finger, or rather in the left hand, was the most prominent feature. Very nearly as unpleasant was the aching pain, which was most violent in the thick muscles of the back and present in almost all of the muscles of the shoulders, chest and legs. There was no marked tendency toward profuse perspiration.

When sudden pains develop without known cause, especially in the extremities, it is well to think of the possibilities of spider bite, if such spiders exist in the community. If there is certainty of a black widow bite, the victim should be at once placed in a hospital if possible, for emergencies may arise making prompt treatment necessary to save life. Children should be regarded as dangerously wounded, and the promptest treatment should be instituted. Local applications are of little value, as the poison seems to attack the nervous system at once. Bleeding or sucking also has no apparent effect.

The control of these spiders is important. In cold countries there is not much danger of many of them, as comparatively few survive the winters. But in milder climates there may be a great increase, and as the spider has taken so kindly to residence near us, she may become a real menace. Whenever the egg sacs are found they should be burned. Sprays are effective only to the degree that they stupefy and make it possible to kill the spider by stepping on it. These spiders are resistant to sprays that kill flies and most other insects. They may appear to be dead but will often recover in a few minutes. It is some protection to paint the under side of privy seats with creosote or crude oil, as many of the bites occur in such outhouses.

There is a tiny fly that eludes the watchfulness of the mother spider and darts in to deposit its eggs on the outside of the spider egg sac. The larvae from these eggs penetrate the spider egg sac and destroy all the young spiders. Three such natural enemies of the spider are known, but so far they have not reached any real importance in the control of the spiders. The young flies must be produced in laboratories before this method of biologic control can be successful, and so far this has not been reported. Researches along these lines are going on in laboratories, and undoubtedly a successful method will eventually be evolved.

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FROM THE LOFTY BLUE RIDGE MOUNTAINS

Ordinary spiders frequently inspire fear. This is many times multiplied when large spiders are concerned, and perhaps the most feared are the tarantulas. The word "tarantula" seems to be applied to any large spider, especially if it is hairy. The word was first used for a European spider (Lycosa tarantula) but now is not considered to belong to that family (Avicylariidae). All large spiders were supposed to be poisonous and to produce violent symptoms. So great was the fear inspired by these spiders that a peculiar form of hysteria resulted in Europe during the Middle Ages and has been frequently described by historical writers. Warburton says,

> The bite of the spider was supposed to induce a species of madness which found expression and cure, in frantic and extravagant contortions of the body. If the dance was not sufficiently frenzied, death ensued. In the case of survivors, the symptoms were said to recur on the anniversary of the bite. Particular types of music were supposed to incite the patient to excessive exertions necessary for his relief, hence the "tarantella." In the Middle Ages epidemics of "tarantism" were of frequent occurrence and spread with alarming rapidity. They were seizures of an hysterical character, analogous to the ancient Bacchic dances and quite unconnected with the venom of the spider from which they took their name. The condition and frenzy was contagious and would run through whole districts, with its subsequent relapse to a state of utter prostration and exhaustion. The evil reputation of the tarantula appears to have exceedingly little basis in fact.

In America the name tarantula is applied to the "bird" and "trap door" spiders (Eurypelma heutzii). In Russia there is another large spider bearing the name tarantula (Trochosa singoriensis) which is generally feared. To determine its exact status as to biting and poisonous qualities an experimenter (Kobert of Germany) carried on work with a hundred of these spiders and reports as follows:

> The tarantulas no matter how often they were placed on the skin, handled and irritated, could not be induced to bite either myself, the janitor or ordinary experimental animals. The objection that the tarantulas were indifferent and weak cannot stand for as soon as I placed two of them on the shaved skin of a rabbit, instead of an attack on the animal, there was a furious battle between the two spiders, which did not cease until one of them had been killed.

Other experimenters have been bitten only after great difficulties with the large spiders, and generally there have been no reactions or very slight ones. In Panama there is a black spider (Sericopelma communis) which undoubtedly may produce severe symptoms. Experiments show that it kills guinea pigs in about half an hour. The experimenter (Baerg) allowed a small dose of the poison to enter his finger and immediately felt a severe pain, which was followed by swell-

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ing, redness and a stiffness of the joints of the fingers, which lasted about a week.

From the large amount of work that has been done to determine the exact place that spiders hold in nature it is apparent that many scientists are much interested in having this point accurately determined. The value of spiders is well known. Many scientists believe that the reports as to harm are much overstated, and these experiments have amply borne out their beliefs. For one spider that is poisonous, hundreds exist that are of great value to man. They should not be indiscriminately killed; and as the varieties that may be troublesome as a rule can be readily recognized, only these should be destroyed.

[NOTE.—In the December issue, Dr. Skinner will conclude his series with an article on venomous insects.]

CORRECTION

Sept. 6, 1938

To the Editor of HYGEIA:

My attention has been called to a factual error in my article entitled "Food Facts and Fallacies," which appeared in HYGEIA for July, 1938, page 628. In this article, on page 642, a statement is made that "there are many nutritional advantages in grape juice. It is a pleasant, wholesome beverage, *a good source of vitamin C,*" et cetera. Objection to this statement was taken by Dr. A. J. Lorenz, and he is absolutely correct. The available evidence indicates that grape juice as ordinarily prepared contains no vitamin C (see *Journal of Agricultural Research*, Vol. 44, No. 1, Washington, D. C., Jan. 1, 1932, page 69). Also, both Daniel and Munsell and Rose (*Laboratory Handbook of Dietetics*) list commercial grape juice as containing no vitamin C.

An interesting report by W. M. Cahill appeared in the *American Journal of Diseases of Children* **50**:1248 (Nov.) 1935. It stated: "By a method similar to that used by Szent-Gyorgi in the preparation of cevitamic acid from lemon juice a hexuronic acid was isolated from grape juice. It resembled cevitamic acid in many of its properties, but it had no anti-scorbutic action."

I would appreciate your publishing this letter in a future issue of HYGEIA.

RUSSELL M. WILDER, M.D.

"Boys are the only thing in the world out of which men are made."
—*Hubbard.*

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THE VITAMIN FOLLIES

(Continued from page 1005)

This is where you get the five essentials:

Vitamin A is in butter, milk, cheese, cream, liver, lettuce, spinach, carrots, corn, artichokes, peas, brussels sprouts, sweet potatoes, bananas, cantaloupes, prunes and dates.

Vitamins B_1 (more correctly termed thiamin chloride) and G or B_2 (better described as riboflavin) are in liver, kidneys, hearts, spinach, watercress, green cabbage, turnip greens, lettuce, whole grain cereals, oranges, cantaloupes, turnips, carrots, muscle meats (as steak) and certain types of yeast.

Vitamin C (cevitamic acid) is in oranges, lemons, grapefruit, tomato juice, spinach, raw cabbage, peppers and strawberries.

Vitamin D is in egg yolks, seafood, cod or halibut liver oil and is formed by sunlight.

That list makes it obvious that most adults can get all the vitamins they need from a few meats, milk, butter, eggs and green leafy vegetables. Oh, maybe some of us don't eat enough liver or drink enough milk. Maybe we boil our vegetables too long, which diminishes the potency of vitamins, or we boil them with soda, which keeps them pretty and green but causes a marked loss of vitamin content. In winter we could use more sunshine and in lieu of that may need cod liver oil or some other acceptable vitamin D preparation. But most well people certainly don't need A-B-C-D etc. type of pills. The people who buy the pills probably need them least of all; it is the people who can't afford a good diet and certainly can't afford expensive medicines who suffer from deficiency diseases.

There are, of course, valuable vitamin pills, capsules or solutions put out by highly ethical pharmaceutic houses, designed for prescription by physicians for prophylaxis of, or treatment in, "deficiency cases." They never were designed to be peddled indiscriminately, and they aren't the brands which are so alluringly advertised to the public.

The "vitamin addicts" could save their money and still stock up on their vitamins by switching their interest from fad to food. Impressively enough, it is the doctor (who believes in vitamin pills but knows how and when to use them) who believes that in most cases you had much better eat your way to health.

My friend Patty can't manage the words yet, so she's saying "welcome" in the Island way—with a fresh flower lei.

Welcoming guests with pineapple juice is an old Island custom, too. Patty's mother always serves her guests delicious Dole Pineapple Juice. It tastes as though it had just been pressed from a fresh, ripe pineapple.

Because Dole Pineapple Juice is so pure* and easily digested, Patty always has a glass in the afternoon with the grownups.

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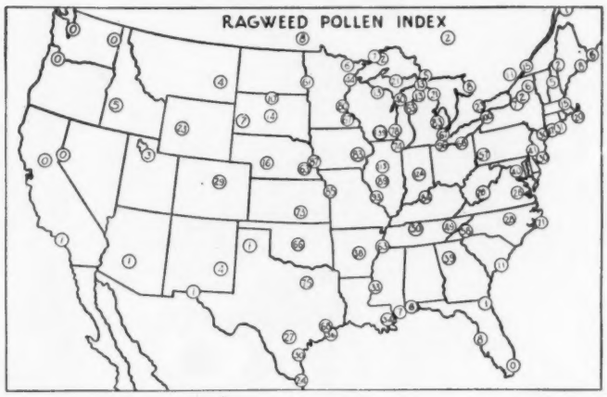

The figures are based on both length of season and degree of atmospheric contamination. The larger the figure, the greater the exposure of those who are ragweed sensitive.

RAGWEED and HAY FEVER

In the September issue (p. 864), HYGEIA published the answer to a question submitted by a reader: "Can you tell me where in the United States I can obtain relief from hay fever?" Because of further comments and questions received, HYGEIA presents herewith a map showing the ragweed pollen index in North America. This index and the accompanying table were compiled by O. C. Durham.

In an article on "Evaluation of the Ragweed Hay Fever Resort Areas of North America," which appeared in the *Journal of Allergy* (January 1937), Mr. Durham calls attention to the fact that "it seems incredible that . . . the uncertain and often dwindling merits of such places as the White Mountains and the upper Great Lakes areas should be judged almost wholly by personal testimonials, colored folders, and radio propaganda. Even the absence of ragweeds in a given region cannot now be accepted as proof of the virtues of that region as an effective refuge from ragweed pollen, for we know that pollen may be blown in toxic amounts for hundreds of miles."

RAGWEED POLLEN INCIDENCE IN NORTH AMERICA

State	Place	Average Number of Hay Fever Days per Season	Maximum Atmospheric Contamination	Average Seasonal Total	Ragweed Pollen Index
Alabama	Mobile	4	170	462	8
Arizona	Phoenix	0	10	145	1
Arkansas	Little Rock	24	363	2,171	38
California	Los Angeles	0	14	88	1
	Sacramento	0	7	34	0
Colorado	Denver	18	363	1,542	29
District of Columbia	Washington	23	493	2,325	40
Florida	Jacksonville	0	20	205	1
	Miami	0	3	8	0
	Tampa	5	47	563	8
Georgia	Atlanta	24	308	2,350	39
Idaho	Boise	33	50	270	5
Illinois	Chicago	32	1,006	6,351	74
	Peoria	38	1,117	12,773	113
	Springfield	39	780	8,512	89
Indiana	Indianapolis	37	2,130	13,073	124
Iowa	Iowa City	34	735	8,378	83
Kansas	Wichita	38	802	5,441	73
Kentucky	Louisville	34	1,246	7,492	84
Louisiana	New Orleans	20	295	2,157	34
Maine	Bar Harbor	5	76	426	8
	Eastport	4	43	280	6
	Upper Dam (Rangeley Lakes)	1	69	139	2
Massachusetts	Boston	10	140	790	15
	Nantucket	12	369	952	20
Michigan	Alpena	13	192	1,124	21
	Detroit	30	1,232	4,913	67
	Flint	26	1,110	9,136	83
	Frankfort	32	720	4,801	63
	Isle Royal	1	48	133	2
	Marquette	13	286	993	21
	Petoskey	8	118	669	13
	St. Ignace	8	168	687	13
	Sault Ste. Marie	5	39	197	5
Minnesota	Duluth	29	250	2,476	44
	Minneapolis	33	1,130	7,096	80
	Moorhead	27	1,021	4,687	61
	Rochester	30	397	4,620	67
	Tower	4	46	253	6

RAGWEED POLLEN INCIDENCE IN NORTH AMERICA—*Continued*

State	Place	Average Number of Hay Fever Days per Season	Maximum Atmospheric Contamination	Average Seasonal Total	Ragweed Pollen Index
Mississippi	Biloxi	4	40	446	7
	Vicksburg	23	159	1,665	33
Missouri	Kansas City	38	905	7,579	85
	St. Louis	36	1,625	8,225	93
Montana	Miles City	2	58	219	4
Nebraska	Lincoln	30	274	2,989	63
	North Platte	12	98	691	16
	Omaha	36	1,029	8,114	87
Nevada	Reno	0	4	12	0
New Hampshire	Bethlehem	3	48	262	5
New Jersey	Atlantic City	18	591	1,682	30
New Mexico	Roswell	2	44	370	4
New York	Buffalo	35	2,000	8,992	100
	Coney Island	15	120	1,327	23
	Lake Placid	5	59	206	7
	New York City	20	254	1,575	30
	Saranac Lake	3	46	370	5
North Carolina	Asheville	31	630	4,070	58
	Hatteras	41	650	4,646	71
	Raleigh	18	357	1,340	28
Ohio	Cleveland	29	1,270	5,318	68
	Toledo	35	1,134	9,949	96
Oklahoma	Oklahoma City	37	568	4,785	66
Oregon	Portland	0	0	0	0
Pennsylvania	Philadelphia	24	308	2,607	41
	Pittsburgh	28	1,606	3,873	57
Rhode Island	Block Island	20	336	1,490	31
South Carolina	Charleston	7	107	571	11
South Dakota	Mobridge	7	75	487	10
	Pierre	8	246	633	14
Tennessee	Knoxville	26	562	3,455	49
	Memphis	35	645	4,323	63
Texas	Amarillo	0	15	146	1
	Brownsville	20	375	1,980	24
	Corpus Christi	15	381	2,327	30
	Dallas	42	924	4,731	75
	El Paso	0	9	110	1
	Galveston	14	666	3,012	36
	Houston	28	1,025	5,961	68
	San Antonio	19	112	1,300	27
Utah	Salt Lake City	1	31	297	3
Virginia	Richmond	19	151	1,199	28
Washington	Seattle	0	0	0	0
	Spokane	0	2	8	0
Wisconsin	Eagle River	8	140	718	13
	Milwaukee	30	1,485	6,561	78
	Plum Island (Door Co.)	22	434	2,679	40
Wyoming	Lander	14	184	1,333	23
Canada	Cochrane, Ont	1	38	114	2
	Father Point, Que	0	21	96	1
	Montreal, Que	10	132	744	15
	Ottawa, Ont	7	81	542	11
	Parry Sound, Ont	5	101	456	8
	Port Arthur, Ont	4	134	312	7
	Prince Arthur, Sask	0	5	6	0
	Toronto, Ont	14	231	1,251	23
	Winnipeg, Man	4	252	374	8
Mexico	Mexico City	0	9	34	0
	Tampico	2	56	279	4

THE APPLE OF SLEEP (Continued from page 1032)

It has the definite advantage that it can be applied safely where inhalation anesthesia would be dangerous. It has the disadvantage that the patient is fully conscious and mentally alert. He need not be, however, and this condition may be easily taken care of by giving him a hypodermic injection of some such drug as morphine or, as is more commonly the case, scopolamine, the "truth serum." Under these conditions he will still be conscious and able to answer questions clearly. He will be, however, in a sort of dreamy haze. He will know that he is being operated on, but each event as it occurs, each question as he replies to it, will register only for the instant. His sensations and realizations will be simply a succession of scenes, each of which fades almost at once and of which he has no continuous realization. The entire picture for him will be seen through a mental fog.

Perhaps the most generally used methods of anesthesia are those in which the anesthetizing agent is inhaled as a vapor—inhalation anesthesia. In these methods the drug is inhaled, absorbed from the lungs by means of the circulation and carried by the blood stream to the central station—the brain—which is then rendered ineffective.

This is the principle of the original methods; but those now in use are far more effective, far different in application and possess a far greater margin of safety.

Modern methods do not depend on a single agent or indeed on a single method of administration. Ether is still widely used, chloroform to a lesser degree and most frequently a combination of substances. Thus ether may be preceded by the administration of

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nitrous oxide, "laughing gas," which acts rapidly, ether being then given after the patient is unconscious. Ether is also used in combination with carbon dioxide and oxygen, the proportions being exactly regulated and easily controlled by ingenious machines devised for the purpose. These methods make anesthesia immeasurably safer and more comfortable for the patient and relieve both surgeon and anesthetist of much anxiety.

Modern anesthetic methods also make possible inhalation anesthesia under circumstances which used to make this procedure so dangerous as to be practically prohibited, not merely because of conditions present in the patient but also because all anesthetic drugs are toxic to greater or lesser degrees and because anesthesia is a species of intoxication.

Inhalation anesthesia demands that the drug in vapor form shall be absorbed by the blood and carried to the brain. The carriers of gases in the blood are the red blood cells. Under normal conditions they carry oxygen, and when they are also obliged to carry other gases the oxygen transport is lessened proportionately. For this reason with older methods, patients under anesthesia were always more or less cyanotic, that is, their skin showed a bluish discoloration as evidence that there was a deficient supply of oxygen. With newer methods not only is this disadvantage lessened because smaller quantities of the drug are required, but even when large amounts must be given and the anesthesia continued for long periods, cyanosis may be eliminated entirely by the admixture of oxygen. So safe has anesthesia by inhalation become that death under anesthesia is now a rarity.

It used to be that the approach of anesthesia was heralded by a preliminary stage of excitement which now and then was quite violent and prolonged. One of the latest agents to be applied to anesthesia is entirely devoid of any such effect, the patient falling into a deep sleep almost at once and awakening, when the anesthetic is withdrawn, without any disturbance of any kind, such as nausea or vomiting.

So varied are the methods of anesthesia now available and so applicable are they to almost any conceivable situation that the conquest of pain may be said to have been achieved. It is now no longer necessary to "grin and bear it" or to rely on the imperfect and uncertain effects of such crude methods as the apple of sleep.

EXTRAVERT or INTROVERT?

(Continued from page 1037)

Temperamental differences are of vital importance in vocational guidance, many a maladjustment of adult life being due to the fact that an extravert is trying to do an introvert's job, or vice versa.

Left to themselves, in most cases children would probably find their own niches in life by means of trial and error. They may be misled at the start, either by parental or outside influence or by the social repute of certain occupations and professions.

Nurses, for example, are characteristically extraverts—markedly so. Judging by tests given to large numbers of them, it appears to be extremely unlikely that an introvert will succeed in that profession. For the most part she will not even get through the training school. She is too sensitive and too little concerned about other people to be at home in hospital or sickroom. If an introvert girl is misled by the enthusiasm of a friend or by heroine worship for Florence Nightingale to think that she wants to be a nurse, she should be directed elsewhere. She will make a good librarian or laboratory technician.

On the whole, extraverts naturally tend to succeed best in occupations that bring them into contact with other people and that demand aggressiveness, decision and action. Introverts will be found predominantly in places where they can work alone and in creative fields, such as art, science and literature.

Of course, there are specializations in these fields. Most poets are introverts, but there are extravert poets, and good ones too—Horace, Chaucer, Browning. Their output is of a different character from that of the introvert—Poe, Shelley, Chatterton, for example. An extravert girl might fail as a sculptor but succeed admirably as a teacher of art to large groups of people. An introvert who goes into law will not be likely to win fame as a jury lawyer but will naturally gravitate into office work.

In short, Max and Jim each have a distinct place in the world. In keeping civilization going, the introverts furnish most of the ideas, the extraverts turn the wheels. In the family, each plays a different role, and each must be treated accordingly. One is as good as the other; but one is by no means the same as the other. Successful parenthood will take account of the differences.

EXERCISE

(Continued from page 1038)

he has passed or is passing from the scenes of work, transportation and war, for it is said on good authority that, in this country, riding is on the increase as a sport. On a Saturday or Sunday during good weather he who would ride on the bridle paths of our city parks may almost be deterred by their crowded condition. There he will see expert riders on stylish mounts, sitting them with the ease and grace of long practice, restraining their exuberance and controlling them with insouciant skill. He will also see young women who remain on their horses only by the grace of God and the ability of the mounts from the riding stables to stay under their riders; young women who hold to the saddle with one or both hands but, in spite of desperate holding, bounce erratically, unbelievably, so as to give the impression that Monday for them will be blue indeed, or perchance black and blue. Their cheeks are flushed; they shriek ecstatically, and probably you could find them at the same occupation the next Sunday, ultimately to bounce less violently and enjoy more fully.

During the proper seasons in Virginia, New York, Vermont, Montana, Wyoming, California; at Hot Springs, Glacier Park or in the plain country, the traveler will find parties of riders improving their health and dispositions for, as some one has said, the outside of a horse is good for the inside of a man. Hundreds of schools, thousands of summer camps and numberless "dude ranches" make riding one of their principal activities. This is particularly true of girls' schools and camps, for riding is one of the few sports in which women do as well as men.

If you try to buy a good Kentucky saddle horse you will find that you have to lay real money on the line, and this would seem a perfectly definite indication that many persons are riding.

[NOTE.—In the December issue, Dr. Reed will conclude his discussion on riding, with the final chapter of this series on exercise.]

* * *

"All work and no play makes Jack a dull boy,
All play and no work makes Jack a mere toy."

And we might add that the happy medium will make Jack's life a joy. Whether you are Jack or Jacqueline, you will be interested in the two radio dramatizations on play and recreation which will be broadcast this month by the American Medical Association and the National Broadcasting Company. The first, "Health-

THE IDEA THAT GLARE IS CAUSED ONLY BY HEADLIGHTS OR BRIGHT SUN

The fact is that there may be almost as much glare indoors as out. Glare from bare bulbs or from bulbs that aren't completely shaded are examples. This indoor glare is a constant source of irritation to our eyes, nerves and mind.

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EASY TO HAVE GOOD LIGHTING WITHOUT GLARE

It is an easy matter to have good lighting without the annoyance of glare. One way to avoid glare is to put suitable shades on bare bulbs . . . shades that will conceal the lamp bulbs without cutting off necessary light.

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This department is a useful guide in the selection of foods of quality, advertised with truthful claims. All products in this section as well as any others advertised elsewhere in HYGEIA stand accepted by the Council on Foods of the American Medical Association, and are entitled to bear its "Seal of Acceptance." The foods listed here are but a portion of those accepted by the Council. If you desire information regarding any other food product, you are invited to write to HYGEIA.

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12 TASTY KINDS

ful Play," which will be given on Wednesday, November 16, deals with health values and hazards in sports and recreation, including football. The second, "Rest, Relaxation and Recreation," will be given on Wednesday, November 30. (For further information, see page 1030.)

SCHOOL AND HEALTH

(Continued from page 1029)

from town to town, visiting the superintendent of schools in each community, explaining these facts to him and getting a decision as to what week would be best for a community "Dental Health Week." Posters announcing the date were placed in store windows; everybody was glad to help. Then the superintendent was supplied with mimeographed copies of a letter from Dr. Brooker in his official capacity; these the children took home soon after the posters appeared.

"To all parents," it was addressed. "We are making a determined effort to protect your and other children of Goldville against tooth decay and the grave conditions of ill health which it develops.

"This disease begins its attack on teeth often as early as two years of age and becomes more serious each year. In order to prevent the baby teeth and particularly the 'sixth year' molars from being destroyed by decay we are asking you to aid us in this purpose. If the baby teeth are permitted to decay they become poisonous, and if they must be pulled too soon the other teeth will grow crooked.

"Cleanness of the tooth prevents tooth decay. Still, there are pits and fissures of the tooth surfaces which are so deep and narrow that they cannot be cleaned by a tooth brush until they have been sealed up with a tiny filling by a dentist. It is in these places that most tooth decay among children begins. We are asking you, therefore, to take your children immediately to the dentist so he may find all such defects and hidden decay and correct them before the tooth is destroyed.

"You cannot tell when tooth decay begins; no one can tell except a dentist. Do not assume, therefore, that your child's teeth are sound be-

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cause they appear so unless the dentist has examined them with his microscope. These examinations should be made about every six months.

"This is particularly important in saving the 'sixth year molars.' This is the first of the permanent teeth to arrive and the most important of all the teeth. It grows into position immediately behind the temporary chewing teeth or molars and before any of the baby teeth have been 'shed.' It is often mistaken for one of the teeth which is soon to be lost, and may be permitted to decay if the baby teeth have been neglected.

"If decay has already progressed in a child's mouth it is all the more important that the condition be corrected at once; the longer the condition is neglected the graver will be the consequences.

"All dentists will be glad to give the child a certificate of mouth health to take to the teacher and his name will be entered on the Dental Honor Roll.

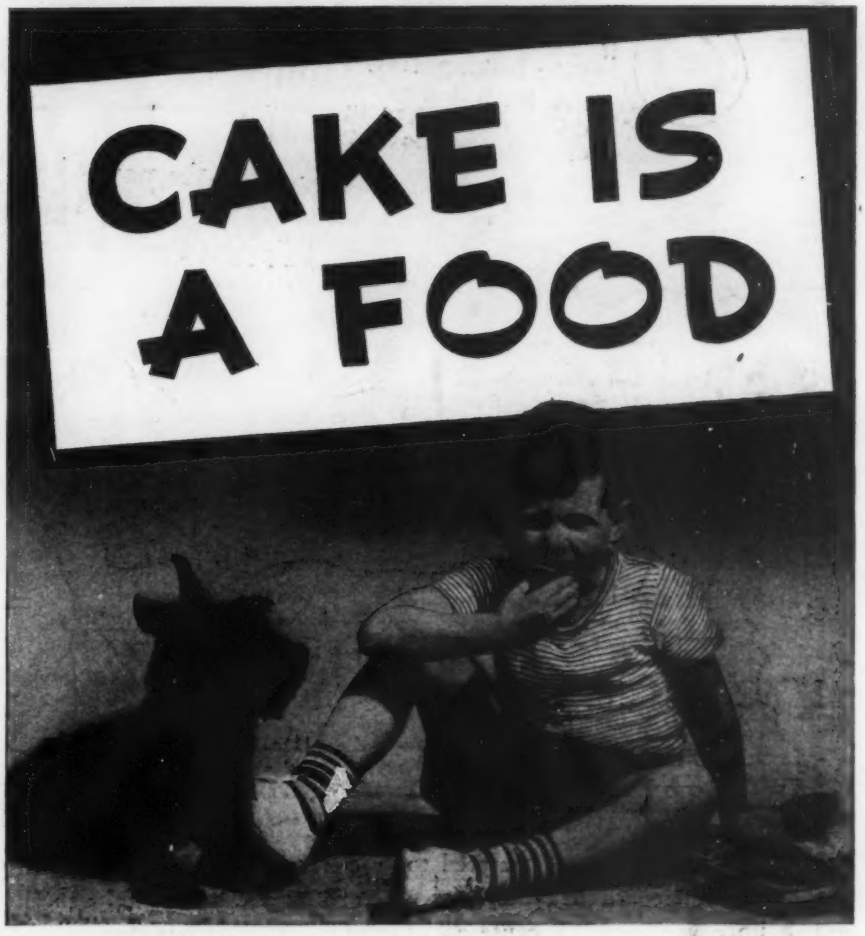
"It is necessary at all times for the children to clean their teeth regularly, to drink milk, eat fruits and vegetables and to refrain from eating too much sweets, especially between meals."

In addition to this, on the first day of Dental Health Week each family represented by the school received a letter from the superintendent:

"We are making an exceptional effort to eliminate decayed and diseased teeth from among our school groups. In this we are being assisted by all the dentists in this city and by the Dental Division of the South Carolina State Department of Health, during Dental Health Week: in Goldville, February 14th to 18th.

"Uncleanness of the mouth is the most potent carrier of the germs of contagious diseases among children, and aching or badly decayed teeth are a constant menace to a child's health. These conditions may cause not only serious diseases, but they underlie many vague disturbances of child health which interfere seriously with normal growth and development and with children's progress in their school work.

"Although children's teeth may appear all right, only a dentist can make sure whether or not they may be decaying seriously on the inside. So we are requesting you to cooperate with us by taking your child to the dentist at the earliest possible time for an examination and having all necessary work done. We are asking further that you provide your children with tooth brushes and suitable dentifrice and encourage their use regularly. The



A GOOD CAKE is more than a good dessert. It is a valuable *food*. It furnishes needed food-energy, contains excellent proteins, minerals such as calcium and phosphorus.

What's in a cake? Milk and eggs, butter and shortening, flour and sugar, sometimes fruits and nuts.

Is cake a "rich" food? No richer than its ingredients, which are among our best and most nutritious foods. Cake is easily digested and readily assimilated by the average person.

Is cake a luxury? A confection? No and no, again. It costs only slightly more per 100 calories than bread. One slice of cake will yield from 135 to 195 calories, depending upon its composition.

Does your child crave sweets? Most children do. Cake is, in the estimation of many leading physicians and nutritionists, highly useful for this purpose. It gives nourishment along with satisfaction.

So, let them eat cake. And let your baker save you labor and expense by making good cake for you.

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"You're looking fine, Madam. But I'll bet you're still drinking Coffee in spite of what the Doctor said!"
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MOST OF US are tempted to disregard the doctor's "give up coffee" edict. Because a hot drink seems almost as necessary at mealtime as a knife and fork.

There are lots of people who don't have to face this problem —they can drink coffee without ill effects.

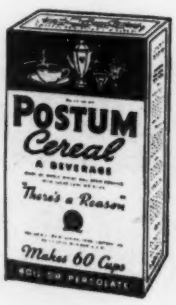
But there are many others with whom coffee disagrees.

Someday, *your* doctor may have to say, "No more Coffee" *to you*. If that happens, we hope he adds "DRINK POSTUM INSTEAD"...as so many doctors *do*.

For Postum's delicious flavor, cheery warmth, and enticing aroma are a real help to the coffee-lover in forgetting forbidden beverages.

And—most important—*Postum contains no caffein!* It is simply whole wheat and bran, roasted and slightly sweetened.

Postum comes in two forms: Postum Cereal, the kind you boil or percolate, and Instant Postum, made instantly in the cup. Either way, it is delicious, easy to make, and very economical (it costs only about ½¢ a cup). Postum is a product of General Foods.



latter is particularly important in the morning before they come to school.

"In making this request we are urged only by the knowledge that health and education must go hand in hand if our children are to attain the highest form of physical and mental development."

In this way, over 50,000 children had their dental needs cared for in a comparatively short time. Among the white group, only 19 per cent could go on the honor roll as having mouths free from dental caries. The Negro children living under the same conditions of diet and environment had about the same percentage. The brightest part of the picture, however, is among the Negro children living along the coast and on the sea islands under the most primitive conditions of any people in the United States. Of these, 64 per cent have no dental decay, and there is very little of it among the remaining 36 per cent.

NEW BOOKS ON HEALTH

(Continued from page 1031)

Step by Step in Sex Education

By Edith Hale Swift, M.D. Cloth. Price, $2. Pp. 207. New York: The Macmillan Company, 1938.

THIS book deals with actual situations which might arise in family life as the child's interest in sex and reproduction becomes manifest. The "actual situations" are, of course, fictitious, but they are entirely typical. They are developed in a simple, sensible, logical manner, and while the actual situations which real parents will face will not be identical with those to be found in this book they will be sufficiently similar so that the examples herein set forth can readily be applied. Indeed, with a little ingenuity many of these situations can be created as the need arises. Among all of the books on sex education in which the proper approach to sex education has been suggested this is the only one so far which actually sets forth the method "Step by Step." It can be recommended without reservation to parents, especially those with young children who can begin at the beginning. W. W. B.

SILVER SPOON ACQUIRED

(See page 1009)

A limited number of original signed lithograph prints of these caricatures are available at a special discount. Please communicate with HYGEIA for further details.

EYE PHYSICIANS

A difference in points of view recently formed the basis of correspondence concerning "Eye Physicians, Opticians and Their Work," which appeared in the September and October issues of HYGEIA. The main points of difference are stated in the following letters from John W. Jarvis, director of the department of public relations, American Optometric Association, Inc., and Edward L. Jackson, M.D., author of the articles:

To the Editor of HYGEIA:

In the article by Jackson, I note two definitions which interest us particularly, the first being "Oculist: An eye physician" and the second, "Optometrist: One who claims ability to measure the eyes for glasses without knowing about its diseases or any regular study of medicine."

The term "oculist" in recent years has not had the definiteness necessary to distinguish an eye practitioner as medical or nonmedical. As a matter of fact, this term is ambiguous, the one following it in the list, namely "ophthalmologist," being, of course, correct and definite: "One who has studied the science of ophthalmology, an eye physician."

The public, knowing that there are nonmedical oculists (optometrists), and medical oculists (ophthalmologists), has made it necessary for the Guild of Prescription Opticians of America to publicize the added term "eye physician" in order that the short and easily spoken word "oculist" might be accepted as being medical.

Forty-eight states have recognized, legislated and licensed the optometrist. Courts have acknowledged his place as definite and apart from the field of medicine. Colleges and universities have adequate courses, usually four years, in the teaching of this science; whereas the medical student gets a limited number of hours on the eye as a whole, and nothing in refraction. At the same time the latter is permitted by law, after his graduation, and the regular legal forms have been complied with, immediately to announce himself as an eye physician, if he so desires. You may say that he takes post-graduate courses and in other ways equips himself for this specialty, but that has been purely volitional.

The following definitions are taken from standard sources:

Webster's New International Dictionary

Optometry: The science which treats of the physiology of the function of vision, and the physi-

"Doesn't she ever *cry*?"

NO, never. Well, *hardly* ever. For she's a Carnation Milk baby . . . and Carnation Milk babies have a surprising way, most times, of being *contented* babies.

Of course, any feeding formula must be planned by the physician to meet the individual needs of an individual baby. But when that is done with Irradiated Carnation Milk, the chances are better than good that formula and infant will get along together famously.

The reason is that Carnation Milk is so easily digested. It forms fine, soft, flaky curds in the stomach. Baby can drink his fill—then peacefully, without distress, assimilate the nourishment he needs.

Irradiated Carnation Milk supplies that nourishment admirably. It is pure whole milk, with nothing taken out but part of the natural water, and all the food value left in. And it is extra rich in "sunshine" vitamin D, so important in the development of strong, straight bones and fine, sound teeth.

Bearing the seal of acceptance of the Council on Foods of the American Medical Association, approved and prescribed by many noted specialists, Carnation is an ideal milk for bottle-fed babies and growing children. Ask your doctor about it—and write for the helpful, color-illustrated, free booklet, "The Contented Baby." . . . *Carnation Company, Dept. 701D, Gas Light Bldg., Milwaukee, Wis.*

IRRADIATED Carnation MILK

"From Contented Cows"

Gentle and Nourishing

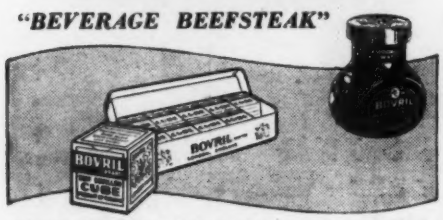
BOVRIL is not only a delicious beef drink for normal individuals . . . but a stimulating, nourishing, easily assimilated food-beverage for invalids, convalescents and elderly folks. It is usually ideally suited to the requirements of delicate or impaired digestions.

A concentrate of extractives of prime, lean beef, BOVRIL's highly scientific manufacture makes for extra wholesomeness . . . while as a hot drink (teaspoonful to a cup of boiling water) it is tasty, warming and comforting.

• 20 to 30 pounds of beef are required to produce one pound of the extract used in making Bovril concentrate. At food and drug stores, by the jar for home and sick-room use. At fountains and lunch counters by the hot cup—10c. BOVRIL OF AMERICA, INC., Camden, N. J.

BOVRIL

"BEVERAGE BEEFSTEAK"



ALSO BOVRIL BEEF BOUILLON CUBES

cal effect thereon of lenses; the measurement of the powers of vision.
Optometrist: One skilled in the science of optometry.

Standard Dictionary

Optometry: Measurement of the powers of vision.
Optometrist: One who practices optometry.

Gould's Medical Dictionary

Optometry: Measurement of the visual powers.

JOHN W. JARVIS, Director
Dept. of Public Relations
American Optometric Assoc.

To the Editor of HYGEIA:

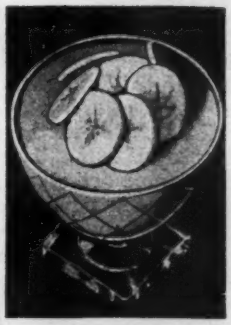
The word "optometrist" was invented and exploited for the benefit of the "nonmedical oculist." The definition of oculist, founded on hundreds of years of use and general agreement, as given in the English Dictionary of Murray, of the University of Oxford, completed in 1928, is: "Oculist, one versed in the knowledge or treatment of the eyes; a physician, or surgeon, who treats diseases and affections of the eyes." That dictionary does not give the word "optometrist." It does give a definition of optometer: "A name of instruments of various kinds for measuring or testing vision, in respect of range, acuteness, perception of form or color, etc."

In the dictionaries that do contain the word "optometrist," the definition given is the one suggested by those who invented and used the word optometrist because the term "nonmedical oculist" or "nonmedical eye examiners" would be so indefinite, or contradictory, that it could not serve their purpose. Since "forty-eight states have recognized, legislated and licensed the optometrist," we suppose it has a legal definition, subject to future decisions of the Supreme Court. But what is its meaning as we read it in the advertising pages or hear it over the radio? Different people have different definitions for words in very general use. Does optometrist mean that the person who claims it as his title has earned it by a course of four years at Columbia University or some other college legally entitled to grant academic degrees?

How many of the members of the American Optometric Association have evidence of fitness to be optometrists after four years of study in such institutions?

How many of the hundreds that claim to be optometrists in their advertisements have had such education?

How many of those who claim to have "studied at Columbia" have



Milk becomes Delicious made into

Rennet-Custards

more readily digestible than milk itself

Make rennet-custards with either:

"JUNKET" RENNET POWDER—Already sweetened and flavored for making an endless variety of rennet-custards. Made in a minute—just add to LUKEWARM milk. No eggs, no baking, no boiling. Six tempting flavors:

Vanilla Chocolate Lemon Orange Raspberry Maple

"JUNKET" RENNET TABLETS—Not sweetened or flavored—add sugar and flavor to taste. More economical for making rennet-custards, easily digested milk foods for infants and invalids. Also for making smoother ice cream with less cream in hand freezers.

FREE Recipe Book

—dozens of new desserts and ice creams. Mail postcard to "THE 'JUNKET' FOLKS," Chr. Hansen's Laboratory, Inc., Dept. 3311, Little Falls, N. Y.

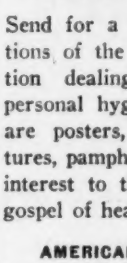
Church's Pure Natural Grape Juice •

made from properly ripened grapes. Contains no added sugar, water or other substance whatsoever.

Free from the excess acid of unripened fruit.

Church Grape Juice Company, Kennewick, Wash.

Home Grown Vegetables for Baby



Every Gerber vegetable is grown on selected soil within an hour's drive of the Gerber kitchens. No delay in transportation and storage to cause loss of quality. 11 fine varieties of Gerber Baby Foods.

Gerber Products Co., Fremont, Mich.

PRICE LIST OF

Health Publications

Send for a free catalog listing publications of the American Medical Association dealing with community health, personal hygiene and sanitation. Listed are posters, lantern slides, plays, lectures, pamphlets and other publications of interest to the public. Help spread the gospel of health in your community.

AMERICAN MEDICAL ASSOCIATION
535 N. Dearborn St., Chicago, Ill.

taken the full course announced for four years or two years in the circulars of the university?

Do the optometrists have any list of those rightly to be so called?

The American Medical Association publishes a medical directory, issuing a new edition of it every two or three years. In that directory is published the name of every doctor who has had a regular medical education in the United States or Canada, with the college from which he graduated, the years he has been in practice, the medical societies to which he belongs and the examining boards that have certified his fitness for the particular branch of medicine or surgery he claims to practice. State boards have been certifying fitness to practice medicine for more than fifty years; and the American Board for Ophthalmology has been holding examinations and issuing such certificates for more than twenty years. The right of an ophthalmologist, or an eye physician, to claim his title, can be proved or disproved by any one who will take the trouble to do it. How can any one know the good faith of some one who claims to be an optometrist?

EDWARD JACKSON, M.D.

OYSTERS and OYSTER FARMING

(Continued from page 1024)

waters. Not only are our eastern oysters edible throughout the year, but they replace the English oysters on the market in the summer months. With the rapid growth of the quick-frozen foods industry in this country making it possible to harvest, freeze and store oysters when they are fattest, there is a growing demand for oysters as a warm weather food. Low in fat content, rich in minerals, easily digested, served raw in the half-shell, buried in ice, they contain many of the attributes of the ideal warm weather food. However, cold weather supplies the setting for the greatest consumption of oysters, about 60 per cent of the annual harvest being marketed in the months of November, December and January. So responsive is the consumer demand to changes in temperature that packers on the Atlantic seaboard have advance notice of an approaching cold wave which has already invaded the Mississippi valley by the increased volume of orders received by telegraph in advance of the actual arrival of the heavy drop in temperature.

No man can learn to enjoy life until he first learns to enjoy his work.—*H. G. Forbes.*

It's A

SENSIBLE DENTIFRICE

Because

IT CLEANS TEETH!

OUR Baking Soda (pure Bicarbonate of Soda) is a good, yet a very low-cost dentifrice. It cleans teeth naturally, pleasantly and thoroughly.

Our brands, Arm & Hammer and Cow Brand, are identical, and are classified as official U.S.P. remedies by the Council on Pharmacy and Chemistry of the American Medical Association.

Long used as a home remedy to relieve the itching of eczema, hives, poison ivy, prickly heat and other skin affections—are dependable in the treatment of any condition for which Bicarbonate of Soda is indicated.

That is why so many housewives keep at least two packages of our Baking Soda in their homes. One for the medicine cabinet, and one on the kitchen shelf. They are available at grocers' nearly everywhere—at a cost of only a few cents a package.

Business Established in 1846

CHURCH & DWIGHT CO., Inc.
10 Cedar Street New York, N.Y.

Teeth Like Other Tools Need Care. And, Chewing Gum is Good for The

As a workman is known by his tools so you can be judged by the cleanliness and care you give your teeth, your chewing tools. When you enjoy gum you help whiten and **BRIGHTEN** your teeth because the gentle, natural process of chewing tends to scrub and **POLISH THE SURFACES** and remove food particles. Your smile becomes more attractive, too. Four ways toward Good Teeth are Right Food, Personal Attention, Dentist's Inspection and *Plenty of Chewing Exercise.* Get some delicious Chewing Gum today.

THERE'S A REASON, A TIME AND A PLACE FOR CHEWING GUM

National Association of Chewing Gum Manufacturers
Rosebank, Staten Island, New York

DR. THURMAN B. RICE'S

Booklets on Sex Education

Parents, teachers, physicians—all who need material on sex education for children and young people—will find the help they are seeking in this sane series of booklets by Dr. Thurman B. Rice. He approaches the subject in a way neither ultra modern nor definitely old fashioned, and successfully combines the idealistic with the practical.

THE STORY OF LIFE—for boys and girls of ten years
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THE AGE OF ROMANCE—for young people of college age
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25 cents a copy

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SPEAKING OF ADVERTISEMENTS

THE OLD ROMANS WERE SMART—THEY piped clear, mountain water by aqueduct all the way to Rome, but you too can have clear, sparkling spring water right at your table. The Cloverdale Spring Company bottles this wholesome and invigorating water direct from a mineral spring in the lofty Blue Ridge Mountains. See page 1042 for details.

A CHEF'S BEST FRIEND. WOULD YOU like to be able to preserve more of the original vitamin content in the foods you cook? Would you like the vegetables and fruits you serve to retain their luscious taste and natural color? To accomplish this, authorities say that foods must not be overcooked, nor "boiled to death." Cookware Co. of America has pioneered a new type of cooking equipment which meets these requirements and proves that a chef's best friend is his cooking equipment. See page 1039 for details.

TEMPTED BY COFFEE? TO MOST OF US A hot drink seems a necessity at meal time, but perhaps your doctor has said, "No coffee." Cheer up! Postum is a real help to the coffee lover. It is delicious, easy to make, very economical, and most important of all—contains no caffein! See page 1052.

WHAT ABOUT LAXATIVES? IN THE FAST tempo of modern living, constipation has become a common ailment. To help you understand the cause and cure of constipation, the Dodge Publishing Company has just published a valuable book on this subject priced at only $1.50. See page 1044 for details.

HOW TO TEMPT AILING APPETITES—FOR touchy digestive systems Bovril can be a tasty, stimulating, easily assimilated beef beverage. Normal individuals, too, like this concentrate. Why not get a jar at your food or drug store for home and sick-room use? Ask for it at the lunch counter too. See page 1054 for an interesting advertisement.